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ST. MARY'S CANAL SEMI-CENTENNIAL — SQUADRON LEAVING THE POE LOCK, AUGUST 2, 1905.

The Saint Marys Falls Canal

Exercises at the Semi-Centennial Celebration at Sault
Sainte Marie, Michigan, August 2 and 3, 1905;
together with a History of the Canal
by John H. Goff, and Papers re-
lating to the Great Lakes

EDITED AND COMPILED BY
CHARLES MOORE

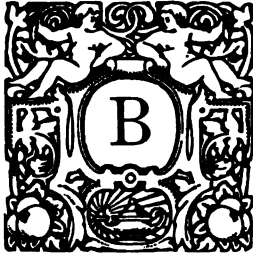
*Original copy of the
canal history and papers*

DETROIT, MICHIGAN
PUBLISHED BY THE SEMI-CENTENNIAL COMMISSION
1907

772 3901.2100
Library

Linotyped by Record Printing Company
Half-tones by Matthews & Northrup,
the James Bayne Company, the Marine Review and
Peninsular Engraving Company
Photographs by the Detroit Publishing Company
and Lord & Rhodes
Printing and Binding by Pohl Printing Company

Preface



Y virtue of the joint action of the Congress of the United States and of the Legislature of the State of Michigan, provision was made for the celebration of the semi-centennial of the opening of the Saint Marys Falls Canal. This action was taken at the instance of Hon. Peter White, of Marquette, and Charles T. Harvey, C. E. of Ottawa, Canada, who presented first at Washington and later at Lansing, the importance and desirability of such a celebration. Neither legislative body was quick to seize the opportunity, and it was only after patient work, carried on during several years, that appropriations of \$10,000 by the United States and of \$15,000 by the State of Michigan were secured.

The first of these appropriations was contained in the Deficiency Appropriation Act, approved March 3, 1905.

The legislation by the State of Michigan took the following form:

Joint Resolution

Relative to the semi-centennial celebration of the completion of the Lake Superior Ship Canal, including the participation of the United States government in the same, and other purposes connected therewith and making an appropriation therefor.

Whereas, in the month of July, nineteen hundred five, will occur the completion of half a century of service of the ship canal around the Falls of the St. Marys River at the outlet of Lake Superior, in the State of Michigan; and

Whereas, during that period it has developed the greatest concentration of marine tonnage in the world and has been of inestimable advantage to the nation, especially in enabling the iron and steel industries of the states bordering on the Great Lakes to attain the front rank, which the same now occupy, also affording the most ample and economical outlet for the vast grain fields products of the trans-Mississippi regions; and

Whereas, it was for two-thirds of those years under the control and management of the State of Michigan as a trust for the national benefit,

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the administration of which reflected great honor upon the officials of this state who wisely performed the duties therewith devolved upon them, until the United States assumed its control, in A. D. eighteen hundred eighty-one, and has greatly enlarged the same on a scale commensurate with the requirements of the vast national traffic passing through it; and

Whereas, Congress has, by an act approved March third, nineteen hundred five, appropriated ten thousand dollars for the purpose of assisting in the celebration of the fiftieth anniversary of the inauguration of the canal, occurring the present year;

Resolved, That the State of Michigan will most cordially co-operate with the United States in rendering such celebration a notable event in the history of the Great Lake region.

First. By the erection, near the canal, of a monolith column of most durable stone, on the four sides of which to be inserted four or more memorial bronze tablets; one for names of United States officials prominently connected with the inception and improvement of the canal; one for the names of State of Michigan officials in similar capacities; one for the names of the original constructors; and one for the names of those prominently connected with the celebration proceedings, including the Semi-Centennial Association as promoters of the same.

Second. By the publication of an artistic statistical memorial volume, furnishing views of the canal at different stages of development, condensed statistics of the first fifty years of traffic, with illustrated biographical sketches of the persons whose names appear upon the before mentioned memorial tablet.

Third. By such arrangements as shall be deemed appropriate for the reception of the President of the United States and other invited national, state, or other officials, also of members of Congress and of this Legislature and of other states, when attending the dedication of the memorial monument; at such date and with such ceremonies and adjuncts as the Commission hereinafter authorized shall determine and announce.

Resolved, That the management of said celebration proceedings shall be vested in a Commission, to be known as The Lake Superior Canal Semi-Centennial Celebration Commission of Nineteen Hundred Five, and to consist of three persons to be appointed by the Governor, who shall serve without salaried compensation, but be reimbursed for actual incidental expenses while promoting or conducting the same; a majority to constitute a quorum for the transaction of business, and with power to appoint a marshal, and such other assistants as may be found advisable; also

Resolved, That the Governor be, and is hereby authorized and requested to invite the States of New York, Pennsylvania, Ohio, Indiana,

P R E F A C E

Illinois, Wisconsin and Minnesota to join in the aforesaid celebration and in any courtesies to be extended to members of Congress or other invited guests in connection therewith ; also

Resolved, That the sum of fifteen thousand dollars be and the same is hereby appropriated out of any money in the State Treasury not otherwise appropriated, to defray such expenses as shall be necessarily incurred in carrying into effect the provisions of this joint resolution, such expenses to be certified by said Commission to the Board of State Auditors and allowed by them. The sums so allowed shall be paid from the State Treasury on the warrant of the Auditor General, and charged to the appropriation account of said Commission: Provided, That in no event shall the State of Michigan be held responsible or be made liable for any sum in excess of the amount appropriated by this joint resolution : Provided further, That the Auditor General shall incorporate in the state tax for the year nineteen hundred five, the sum of fifteen thousand dollars, which, when collected, shall be credited to the general fund to reimburse the same for the money hereby appropriated.

This joint resolution is ordered to take immediate effect.

Approved May 3, 1905.

The Governor appointed the following Commission : Peter White, of Marquette, Horace M. Oren, of Sault Ste. Marie, and Charles Moore, of Detroit. The Commission organized by electing Mr. White, president and Mr. Moore, secretary and treasurer. The Commission appointed Charles T. Harvey, chief marshal, and arranged a celebration covering August 2 and 3, 1905. The burden of the local arrangements devolved largely upon Mr. Oren, who was ably assisted by local committees. The weather was perfect and the schedule was carried out without mishap or variation. The attendance was limited only by the number of people that could be cared for. Besides the Vice-President of the United States, the Governor of Michigan, and representatives of the Dominion of Canada, there was a large representation of members of Congress and other United States officials, members of the State Legislature, vessel owners, yachtsmen and residents of Sault Ste. Marie in early days.

The vessel parade, the procession and the fire-works on the first day were successful in the highest degree, and the addresses on the second day were appropriate to the international character of the event.

The presence of vessels of the United States Navy, of the Engineer Corps, the Revenue Cutter, and the Light House services, and of the

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Michigan Naval Reserves, and the co-operation of the battalion of the First United States Infantry from Fort Brady, and of the second and third battalions, Third Regiment, Michigan National Guard, added largely to the success of the celebration. A band of Indians under the charge of Mr. L. O. Armstrong set up their wigwams on the old site of Fort Brady, and by their very presence as well as by their songs and dances recalled the early days of Sault Ste. Marie.

The Dominion of Canada graciously and efficiently co-operated in the preparations, and participated in the exercises. The addresses of the Canadian speakers adverted to the days of both French and English dominion, and the fire-works and electric displays on the Canadian side of the river were surpassingly fine.

This volume contains a report of the celebration, a history of the canal carefully prepared by Hon. John H. Goff, formerly of Sault Ste. Marie, and now a member of the Detroit Bar, together with papers on the commerce of the Great Lakes in 1905, written by Mr. Ralph D. Williams, editor of the *Marine Review* of Cleveland, and other documents of historical value. For many of the illustrations, the Commission is indebted to the courtesy of Mr. John A. Penton, owner of the *Marine Review* and the *Iron Trade Review*.

The permanent memorial provided for in the resolution of the Michigan Legislature is a monument of red granite taken from quarries at Branford, Connecticut, owned by the Norcross Brothers, of Worcester, Massachusetts, the contractors. The shaft, 44 feet in height, and 4 feet, 4 inches in diameter at the base, stands on a base of two steps, 2 feet, 3 inches in height. The contract price of the monument in place was \$19,000. The monument was designed by Mr. Charles Follin McKim, of the firm of McKim, Mead & White, architects, New York City. Both in form and in material, the monument follows the most enduring of Egyptian obelisks; and this particular design was chosen because it was deemed best suited to commemorate works of engineering. The monument will bear the following inscriptions:

[NORTH TABLET]

BESIDE THESE RAPIDS, JUNE 14, 1671, DAUMONT DE LUS-
SON, NICOLAS PERROT, LOUIS JOLIET AND FATHERS DABLON,
DRUILLETES, ALLOUEZ AND ANDRE CLAIMED POSSESSION
OF ALL THE LANDS FROM THE SEAS OF THE NORTH AND WEST
TO THE SOUTH SEA, FOR LOUIS XIV. OF FRANCE. IN 1763, THE
LAKE REGION WAS CEDED TO ENGLAND AS A PORTION OF
CANADA, AND AT THE CLOSE OF THE REVOLUTION, SAINT
MARYS RIVER BECAME PART OF THE NATIONAL BOUNDARIES.
IN 1797, THE NORTH WEST FUR COMPANY BUILT A BATEAU
CANAL AND LOCK ON THE CANADIAN BANK. IN 1820, LEWIS
CASS, GOVERNOR OF MICHIGAN TERRITORY, HERE ESTAB-
LISHED THE AUTHORITY OF THE UNITED STATES FROM THE
GREAT LAKES TO THE MISSISSIPPI RIVER.



THE MONUMENT IN THE QUARRY OF NORCROSS BROTHERS COMPANY, BRANFORD, CONN.

[EAST TABLET]

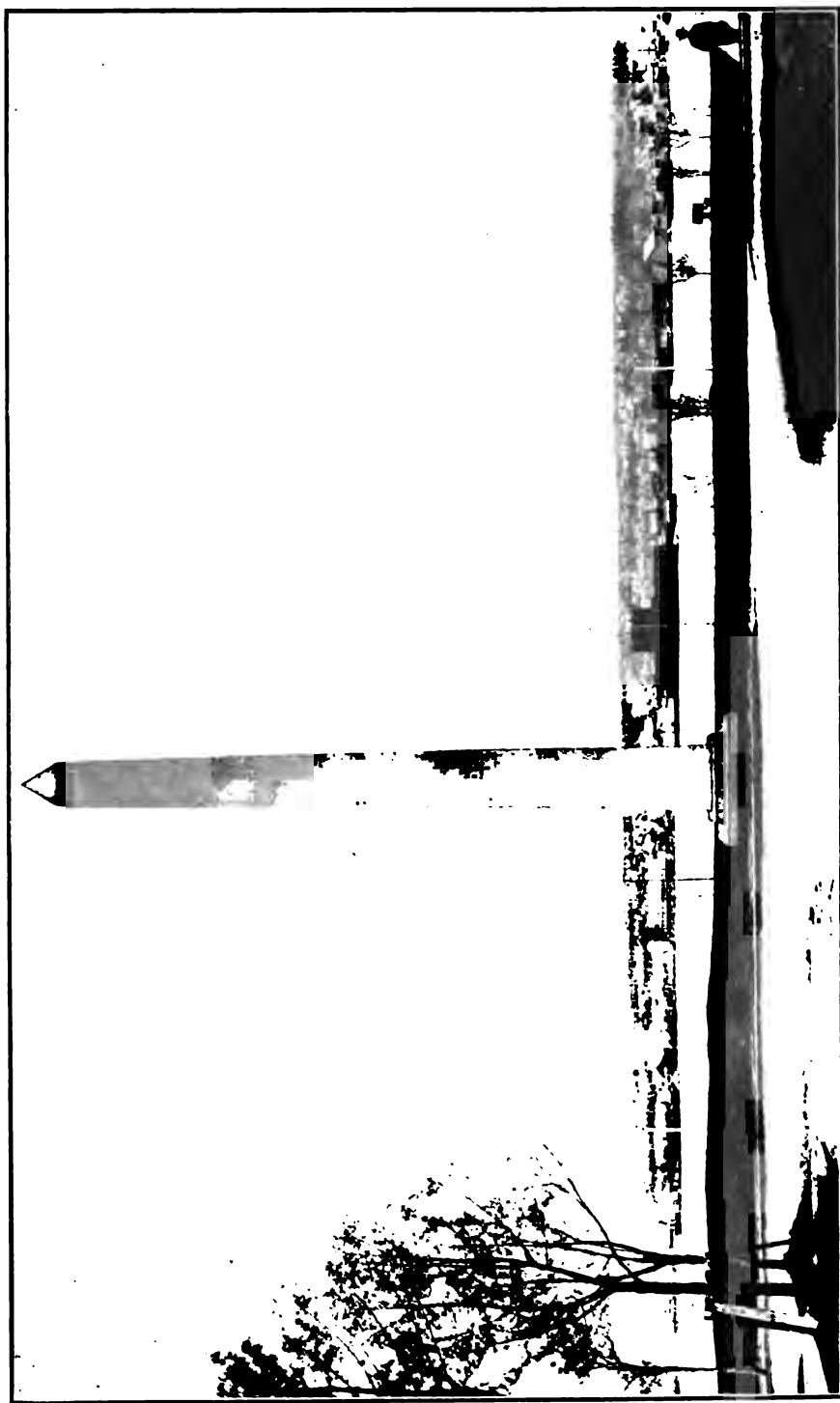
THE XXXII. CONGRESS HAVING MADE A GRANT OF PUBLIC LANDS TO AID THE CONSTRUCTION OF A SHIP CANAL AROUND SAINT MARYS FALLS, THE STATE OF MICHIGAN CONTRACTED WITH JOSEPH P. FAIRBANKS, JOHN W. BROOKS, ERASTUS CORNING, AUGUST BELMONT, HENRY DWIGHT, JR., AND THOMAS DWYER, PRINCIPALS; AND FRANKLIN MOORE, GEORGE F. PORTER, JOHN OWEN, JAMES F. JOY, AND HENRY P. BALDWIN, SURETIES, TO BUILD A CANAL ACCORDING TO THE PLANS OF CAPT. AUGUSTUS CANFIELD, U. S. A. THE WORK OF CONSTRUCTION WAS ACCOMPLISHED BY CHARLES T. HARVEY, C. E., WHO OVERCAME MANY SERIOUS OBSTACLES INCIDENT TO THE REMOTE SITUATION. THE CANAL, OPENED JUNE 18, 1855, WAS OPERATED BY THE STATE UNTIL JUNE 9, 1881, WHEN IT WAS TRANSFERRED TO THE UNITED STATES AND MADE FREE TO ALL VESSELS. SUPERINTENDENTS UNDER THE STATE: JOHN BURT, ELISHA CALKINS, SAMUEL P. MEAD, GEORGE W. BROWN, GUY H. CARLETON, FRANK GORTON. JOHN SPALDING.



THE MONUMENT READY FOR LOADING.

[WEST TABLET]

IN 1856, CONGRESS FIRST MADE APPROPRIATIONS TO IMPROVE SAINT MARYS RIVER UNDER THE DIRECTION OF THE CORPS OF ENGINEERS, U. S. A. CAPT. JOHN NAVARRE MACOMB AND CAPT. AMIEL WEEKS WHIPPLE HAD CHARGE OF THE WORK UNTIL 1861; AND COL. THOMAS JEFFERSON CRAM, MAJ. WALTER MCFARLANE AND MAJ. ORLANDO METCALFE POE FROM 1866 TO 1873. THE WEITZEL LOCK WAS BUILT BETWEEN 1876 AND 1881 BY MAJ. GODFREY WEITZEL, ASSISTED BY CAPT. ALEXANDER MACKENZIE. MAJ. FRANCIS ULRIC FARQUHAR AND CAPT. DAVID WRIGHT LOCKWOOD WERE IN CHARGE, 1882-3. FROM 1883 TO 1896, THE CANAL WAS ENLARGED AND THE POE LOCK BUILT BY COL. POE, ON THE SITE [OF THE STATE LOCKS. FROM 1895 TO 1905 THE OFFICERS IN CHARGE SUCCESSIVELY WERE LIEUT. JAMES BATES CAVANAUGH, COL. GARRETT J. LYDECKER, COL. WILLIAM H. BIXBY, MAJ. WALTER LESLIE FISK, AND COL. CHARLES E. L. B. DAVIS. GENERAL SUPERINTENDENTS UNDER THE UNITED STATES; ALFRED NOBLE, EBEN S. WHEELER, JOSEPH RIPLEY. SUPERINTENDENTS: JOHN SPALDING, WILLIAM CHANDLER, MARTIN LYNCH, DONALD M. MACKENZIE.



MONUMENT ERECTED IN CANAL PARK, SAULT STE. MARIE, TO COMMEMORATE THE FIFTIETH ANNIVERSARY OF THE OPENING OF SAINT
MARYS FALLS CANAL; DESIGNED BY MCKIM, MEAD & WHITE; CONSTRUCTED BY NORCROSS BROTHERS COMPANY.

[SOUTH TABLET]

THIS MONUMENT, ERECTED BY THE UNITED STATES, THE STATE OF MICHIGAN, AND THE MINING AND TRANSPORTATION INTERESTS OF THE GREAT LAKES, COMMEMORATES THE FIFTIETH ANNIVERSARY OF THE OPENING OF SAINT MARYS FALLS CANAL, CELEBRATED AUGUST 2 AND 3, 1905; THEODORE ROOSEVELT BEING PRESIDENT; FRED M. WARNER, GOVERNOR. CELEBRATION COMMISSIONERS: PETER WHITE, HORACE MANN OREN, CHARLES MOORE. CHIEF MARSHAL: CHARLES T. HARVEY.

T H E S A I N T M A R Y ' S C A N A L

Towards the cost of the monument, the sum of \$9,775 was contributed, mainly by the following :

Acme Steamship Company	Corrigan, McKinney & Company
Bessemer Pig Iron Association	Chicago, Milwaukee & St. Paul
Cleveland-Cliffs Iron Company	Railway Company
L. W. Powell	Chicago & Northwestern Railway
Gilchrist Transportation Company	Company
M. A. Hanna & Company	Gowan-Peyton-Twohy Company
Marshall-Wells Hardware Company	Jones & Laughlin Steel Company
Northern Steamship Company	John Mitchell
Oliver Iron Mining Company	Oglebay, Norton & Company
Pickands, Mather & Company	F. A. Patrick & Company
Stone-Ordean-Wells Company	Pittsburg Steamship Company
Tod-Stambaugh Company	G. A. Tomlinson
Wilson Transportation Company	Upson-Walton Company
Thomas Barden	Wisconsin Central Railway Company
Calumet & Hecla Mining Company	

The Treasurer's accounts with the United States and the State of Michigan were settled on vouchers submitted. The Union Trust Company, of Detroit, acted, without compensation, as the disbursing agent of the Commission.

To the citizens of Sault Ste. Marie, both of the Michigan and the Canadian Sault, the Commission owes gratitude for unbounded hospitality and cheerful co-operation, and it was a feature of the occasion that Mr. Charles T. Harvey, the engineer and constructor of the original canal was present to take part in the exercises as the chief marshal of the parade.

CHARLES MOORE

April, 1907.

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FORT BRADY PARADE GROUND.

Celebration of the Semi-Centennial of the
Opening of The Saint Mary's Canal.

CELEBRATION
OF THE
Semi-Centennial of the Opening
OF
THE SAINT MARY'S CANAL

Introduction

BY J. P. NIMMO



RIEST, Frenchman, English-Canadian, Indian and American joined in the celebration of the second and third days of August, 1905. They were not conquering by discovery nor by arms; they were not marking boundary lines; they were not lifting scalps, nor coveting them. Consciously or unconsciously they offered thanks that those things were of the past. A few looked on the foaming rapids—now converted into a great factor in modern manufacture—and the whole panorama of the ages passed before their minds. Some, with the modern spirit of money-making upon them calculated the profits in marine commerce now as compared with 50 years ago, with never a thought of La Salle's *Griffon* or the venturesome flat-bottomed craft that once dared the great lakes. All of those 40,000 spectators saw a grand pageant, heard statesmen explain it, and went home happy.

It was fifty years since the first boat had gone through the St. Mary's ship canal, and Michigan and her sister states of the great lakes and Canada had sent their citizens to the site to rejoice and give thanks.

THE SAINT MARY'S CANAL

"In 1855," says Mr. Peter White, "there was no vessel on the great lakes of more than 600 or 700 tons. As soon as the canal was open the tonnage of vessels went as high as 1,000, then 2,000 and 3,000. I remember well the excitement when the leviathan of the lakes—the *Selwyn Eddy* of 5,500 tons, was launched at Bay City." This morning of the second of August, 1905, Mr. White saw thirteen vessels of various dimensions go through the Poe lock with one opening of the gates.

Naval salutes from the United States and State of Michigan vessels in the harbor at sunrise had told British subject and American citizen that



UNITED STATES REVENUE CUTTER TUSCARORA, WITH VICE-PRESIDENT FAIRBANKS AND SENATOR BURROWS ON BOARD.

the international demonstration had begun. Sunshine direct from Olympus bejeweled the river, threw little rainbows in the rapids, and danced upon the gold and brass of officers and ships. Humanity, good natured beyond its wont, massed itself along the banks of the river and the sides of the huge lock, and cheered out its patriotism as Vice-President Fairbanks appeared on the deck of the *Tuscarora* at the head of the naval parade and majestically saluted his welcomers after his own manner. Then came Solicitor-General Lemieux and Senator Dandurand, of Canada, on

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the *Philadelphia*, and Governor Warner and his glittering staff with members of the Michigan legislature on the *Morrill*; and with them all more bowing and cheering. Michigan's statesmen and public men from other states were there in force—all on board the holiday fleet, puzzling over the ensigns at the mast head and making vain endeavors to count the colors that dressed the ships from stem to stern.

Slowly—not quickly—the water rose in the great Poe lock and the vessels of the naval parade began steaming up stream preparatory to an imposing descent on the Canadian shore. Steadily up the river for a mile or two, with the boats several lengths apart, the novel procession sailed



VICE-PRESIDENT FAIRBANKS LEAVING THE TUSCARORA TO VISIT THE WOLVERINE AND THE YANTIC.

on with its music and laughter and holiday colors, then turned for the entrance to the Canadian lock. Except for the difference in the design of the flags Vice-President Fairbanks himself might have found some difficulty in realizing that he was now a guest in foreign waters. British loyalty flouted itself in high and numerous Union Jacks and Canadian ensigns, and Canadians on the American vessels proudly whispered in confidential tones to their neighbors—"This is Canada." But the welcome to the American fleet—the screams of boat and factory whistles, and the cheers

THE SAINT MARY'S CANAL

for Vice-President Fairbanks as a British flag was run up to the mast head of the *Tuscarora* were quite as deafening as the most enthusiastic and fastidious American patriot could wish.

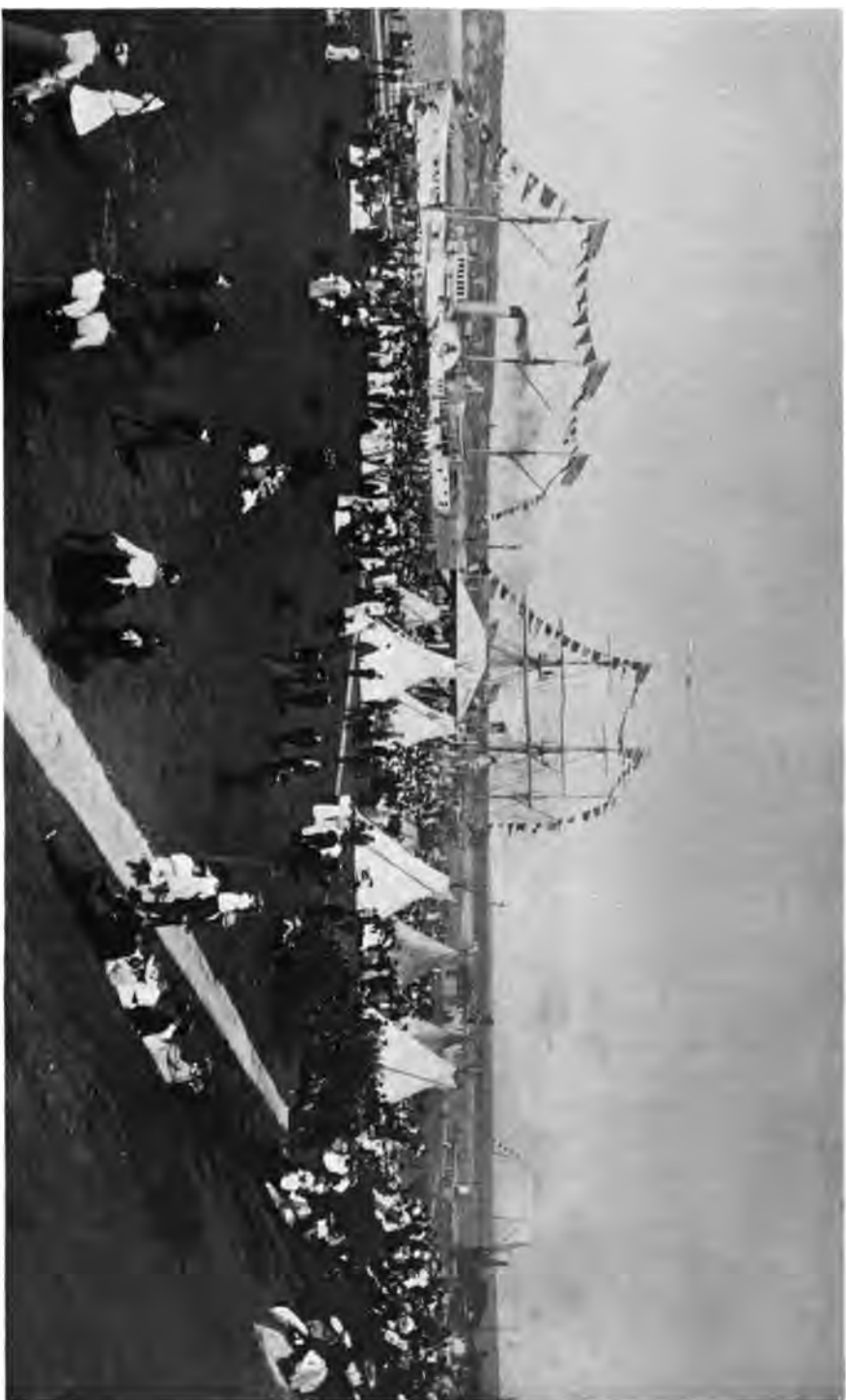
Not so quickly, but with comparative speed, the water lowered between the gates, and the Yankees sailed away. The *Philadelphia*, with her distinguished Canadian guests escorted the visiting fleet well out into the harbor, and with a vigorous salute of her whistle, turned for the Canadian shore, while two Chippewas executed a weird Indian dance on deck. One performer was a grizzly chieftain something under 150 years old. The other was "Rising Sun," known among the English speakers as Mr. B. J. Clergue.

The American fleet made a half-moon maneuver in the harbor. The Vice-President and the Governor left their respective ships to meet on the United States S. S. *Wolverine*. From the *Tuscarora* and the *Morrill* there were nineteen guns for the Vice-President, and seventeen for the Governor. Then they left the *Wolverine* to visit the Michigan Naval Reserve S. S. *Yantic*. Now it was the *Wolverine* that repeated the salutes and now the *Yantic*.

And amid all the booming and smoke and crash of the bands, there was not a good Yankee—or Canadian—along either shore of St. Mary's river, who did not feel his blood tingle and his muscles tighten and his lungs expand until he shouted for more. And just to keep his blood at the right temperature three first class bands were filling the air with military, leaping, throbbing music in the canal park at Old Fort Brady—the regimental bands of the First United States Infantry and the Third Michigan National Guard, and the band of the Calumet & Hecla Mining Co., from Houghton—one of the best trained in the country.

The programme for the afternoon of the second of August introduced to the celebrants a connecting link between the prosperous days of the twentieth century and the period of early exploits in marine engineering at Sault Ste. Marie in the person of Mr. Charles T. Harvey, chief marshal of the military parade. With Mr. Peter White, Mr. Harvey related many thrilling experiences in pioneer days. It was most fitting that he should now appear as a leader in the celebration of events with which he was identified.

Nation and state, past and present, were represented in the thousands of spectators who flanked the line of march, as well as in the ranks of the marchers. French habitants chattered in a patois born among the settlements on this continent, when French and Indian, Indian and English, English and French fought together and against each other and struggled for the raw riches of the new country. Rarely has the street throng so completely enjoyed itself. Steamboats and steam coaches and trolley cars carried the sons of men who never saw any of them, nor dreamed of them.



INDIAN ENCAMPMENT, OLD FORT BRADY PARK.

THE SAINT MARY'S CANAL

Street fair attractions caught the wondering eye of woodsmen and farmers and secured their petty investments. Shooting galleries, free music, cane-racks, toy balloons, doll-men, sandwich stands and Indian souvenir vendors, did a business unprecedented in larger centers than "the Sault," while the continual pageant offered a new spectacle every hour. Quarrels were infrequent. Good fellowship held full sway. At one corner a white boy interrupted the work of shining the shoes of a pigeon-toed Indian, long enough to gaze at the military procession.



THE PARADE: VICE-PRESIDENT FAIRBANKS AND GOVERNOR WARNER IN THE LEADING CARRIAGE.

The regulars, of course, took the right of way, followed by volunteer infantry, marines, and civilians. A tour was made through the principal thoroughfares of the city, concluding with a review by Vice-President Fairbanks and Governor Warner in Old Fort Brady and Canal Park. The parade was formed in the following order:

Chief Marshal Charles T. Harvey.

Major Robert N. Getty and staff, First U. S. Infantry.

First U. S. Infantry band.



Iron Pier Lock.



I N T R O D U C T I O N

First Battalion, First U. S. Infantry, consisting of Companies A, B, C and D.

Col. Robert J. Bates and staff, Third Infantry, M. N. G.

Third Infantry M. N. G. band.

Second Battalion, Third Infantry M. N. G., consisting of Companies B, C, F and H.

Third Battalion, Third Infantry M. N. G., consisting of Companies D, K, L and M.

Calumet & Hecla band.

Commander H. Morrell and staff, U. S. Navy.

First Battalion Marines and Sailors U. S. Navy, constituting Officers and crew of U. S. S. *Wolverine* (formerly the *Michigan*.)

Commander Frederick D. Standish and staff, Michigan State Naval Brigade.

First Battalion, Michigan State Naval Brigade, consisting of First Division, Detroit; Second Division, Saginaw, E. S.; Third Division, Detroit; Fourth Division, Benton Harbor.

In Carriages—The Vice-President of the United States, the Governor of Michigan and staff; the Mayor of the City of Sault Ste. Marie; the Lake Superior Canal Commission of Nineteen Hundred Five; Speakers at Commemorative Exercises, including United States Senators and Members of Congress and Representatives of the Dominion of Canada; the United States Engineers and General Superintendent in charge of the United States Ship Canal and Engineers and General Superintendents formerly in charge; the General Superintendent of the Canadian Ship Canal; Members of the Senate and House of Representatives of Michigan; State Officials, and other distinguished guests.

Recalling savagery and the wilderness, was the group of half a hundred Ojibways camped in tepees beside the reviewing stand in Old Fort Brady Canal Park. The clothes were there, the strange twitter of a dying language, the war paint and the feathers—yet all saturated with civilization, and, after all, a show and a show only. The very appearance of the old Ojibways as performers and entertainers for the white man brought to the mind of every auditor the ever recurring thought "They are tamed. Their country is tamed." Is there aught more saddening, apart from the exhilarating glow of conquest and achievement, than the passing of a people, a nation, a race, customs, language, gods, individuality?

Such a thought is no uncomplimentary criticism of the work of Mr. L. O. Armstrong, of Montreal, who directed the reproduction of the life of the Indian natives, nor of the show as such. Mr. Armstrong did his work well. So did the Indians. Several of their fathers had lived as warriors in the original Indian village that stood on the very site where they now imitated themselves. But that was before the republic of the United

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States needed the upper peninsula of what is now Michigan, before the red man was compelled to "move on." Now the sons appear as speech-makers and story tellers—telling pleasantly and without resentment of the old days when the navigation of St. Mary's river was just becoming a matter of science and not of canoes, telling of the arrival of the white man and repeating the big and little incidents that presaged the departure of their race.

One incident occurred on this very day that emphasized the pathos of the occasion. Mr. White had gladdened the hearts of his bronzed brethren by joining in a good old Ojibway song with some of their elders, and the sightseers were dispersing when Mrs. Thomas D. Gilbert, of Grand Rapids, appeared in the midst of the chiefs and began to chat with two or three



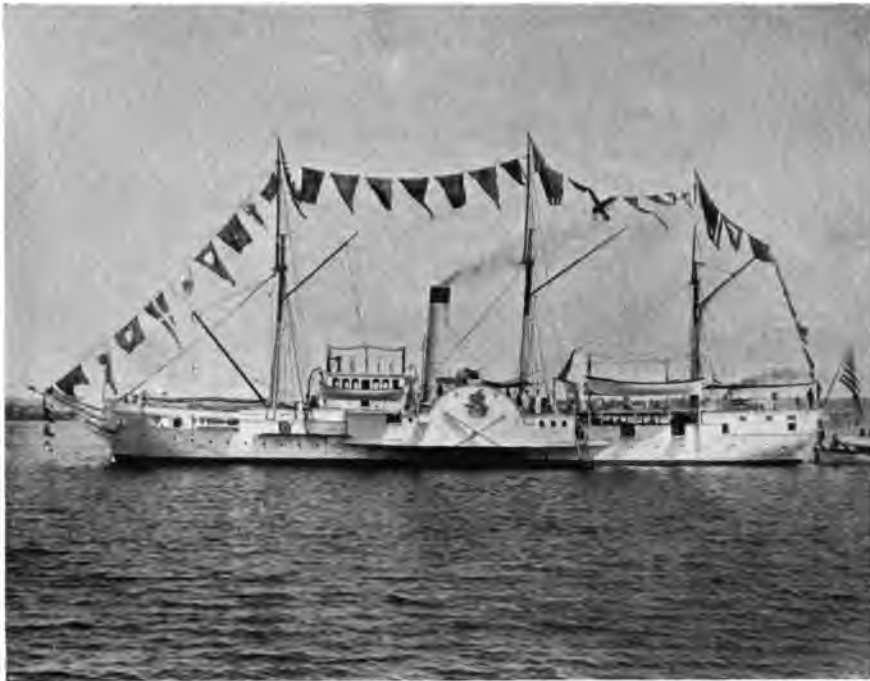
THE REVIEWING STAND, OLD FORT BRADY PARK.

of them in their own tongue. As a girl, when her father was the Baptist missionary at the Sault, she used to speak their language as fluently as her own. Today she reached back for the words that were eluding her memory. She spoke—and hesitated—and spoke again. Again she stopped and stood thoughtfully gazing over their heads while her tongue tried to form syllables once so familiar. The intense, expectant yearning in the old chiefs' swarthy, wrinkled faces as they hung on their white queen's breath, fearful that she, too, had forgotten, was the yearning of the captive wild deer for its kind. Her broken words were their swan song.

In the south park of the canal, and in the old Fort Brady Canal Park, the visiting bands gave another musical entertainment that afternoon, lasting three hours.

I N T R O D U C T I O N

The arrival of trains and boats all day had filled the town to overflowing with visitors from all parts of the country. Only a gentleman of Governor Warner's placidity and physical endurance could have borne up under the strain of public feteing and enthusiasm. So when he entered the pagoda in the south park of the canal for the reception of the day he was smiling and unruffled. Distinguished guests attending the reception were the Vice-President of the United States, the United States Senators and Representatives, government officials, officers of the army and



UNITED STATES STEAMSHIP WOLVERINE, CAPTAIN H. MORRILL, U. S. N.

navy, corps of engineers, and the revenue marine service, members of the legislature and state officers, invited guests and citizens.

But the evening spectacle! It was powder and more powder! When the Canadian government agreed to join in the celebration, it appropriated some \$1,000 for the occasion. Most of this money went into fireworks. The men of the Canadian Sault did not propose to have the United States beat them out on any display. It is only fair to state that the gentlemen of the Canadian Sault realized their ambition. Time and again the captains and mates floating about the harbor in all kinds of vessels from

THE SAINT MARY'S CANAL

naphtha launches to steel freighters, nearly ruined their whistles—that is, the boat whistles—in an attempt to show the Canadians that they appreciated the magnificent illumination of the Canadian shore. The reproduction of Niagara Falls in fire, extending along several hundred feet of water front, and the likeness of King Edward done in gold, blue, and red fire were two of the best pieces of work of this kind seen on this continent. The American display was well proportioned to the importance of that part of the programme and was supplemented by the illumination and decoration of many of the vessels in the harbor.

It was quite properly presumed by the Michigan Commissioners who arranged the programme that the celebrants would have sated themselves with noise and powder and bunting and bright lights the first day. Consequently Thursday, the third day of August, was reserved for a calmer consideration of the meaning of the events of the day before. The good wine was kept until the last. For on this second day the representatives of the nation, the state, the marine interests and the Dominion of Canada, spoke from the rostrum, the oratory being interspersed with selections by the Calumet & Hecla Band.

In the speaking-stand in the south park of the canal Archdeacon Lord, of Sault Ste. Marie, opened the morning's programme with an invocation. Acting for the mayor of Sault Ste. Marie, Hon. Chase S. Osborn delivered the address of welcome. Governor Warner spoke on "The State of Michigan and the Building of the Saint Mary's River Ship Canal." He was followed by the Hon. Peter White, president of the Semi-Centennial Commission, on "The Development of the Lake Superior Region." This ended the morning numbers of the program. The guests adjourned at noon for luncheon at the club rooms of Le Sault Ste. Marie Club, and the Sault Ste. Marie Elk's Lodge.

Vice-President Fairbanks opened the speaking in the afternoon. He was followed by Hon. Rodolphe Lemieux, Solicitor-General of Canada, who received exceptional applause; Hon. Theodore E. Burton, of Ohio, chairman of the Committee on Rivers and Harbors in Congress; Hon. William Livingstone, president of the Lake Carriers' Association; Hon. Julius C. Burrows, United States Senator from Michigan; Senator Dandurand, Speaker of the Canadian Senate, and Mr. Francis J. Clergue, who responded briefly to calls from the audience. "America," rendered by the band of the First United States Infantry, and followed by a series of cheers, brought the semi-centennial officially to a close.

As an expression of the scientific and marine achievements of half a century, the celebration of 1905 was conceived and consummated. Popular rejoicing and profitable reflection were its keynotes; education and inspiration were its fruits. The people of Canada and the United States rejoiced over a lasting conquest; in friendly rivalry they bodied forth their national

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sentiments and their international amity. In reflection on past events they were reminded that there is still much to do, that progress has not done its last work. The passing generation let the bright light in on cloudy memories and saw the Indian and the canoe and the wooden craft dropping out of their lives. They saw steel leviathans growing and multiplying, and told their sons of what had happened in their day. They pointed to the military and naval power of their continent and told their sons of the sudden strength of the white man and the white man's government. They harkened to the public men of the continent, and told their sons that the wilderness and the raging river had become an everlasting heritage. That



THE SPEAKERS' STAND.

was the inspiration. Charles Moore, in "The Northwest Under Three Flags," says: "The capitalists are realizing the dreams of the seventeenth and eighteenth centuries. The trade with Cathay that eluded Nicolet is now maintained by the daily shipments of wood pulp to Japan; the copper that Joliet was unable to discover has at last been found, and with it nickel and iron; Radisson's overland path to Hudson Bay is being traversed by the Algoma Central Railroad, now building; and the waters of St. Mary's River are being harnessed to build up a great manufacturing center. Meanwhile the largest tonnage known to any waterway in the world annually passes to and from Lakes Superior and Huron."

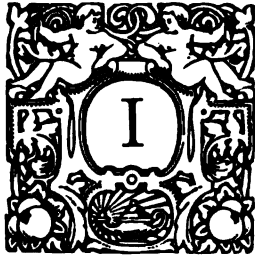


FLEET OF THIRTEEN VESSELS IN THE POE LOCK.

Welcome to Sault Ste. Marie

BY HON. CHASE S. OSBORN

ON BEHALF OF MAYOR FRANK PERRY



ON behalf of the Mayor and in the name of all of the people of Sault Ste. Marie, I proclaim to all the assembled visitors, a heartfelt welcome. We are gathered in a spirit of mingled pride, hopefulness and thankfulness—pride in what has been achieved in the way of material growth, hopefulness that the future will repeat in an enlarged way the record of the past, and thankfulness that we live in a land of the most expansive liberty, where desire and ambition are the kindred of necessity and accomplishment.

It is fitting that the Dominion of Canada participates in this occasion. Her interests and sympathies are inseparable from ours in all of this momentous border growth.

We are all happy in having here some of the sturdy pioneers who with mind and heart and arm pointed and forced the way in the days when it was harder to do things than it is now. This great work here is a monument to their efficient citizenship. The men who are here today in their great 500-foot, 10,000-ton steam batteaux are inspired by the same eager ambition that fired the souls of the voyageurs centuries ago.

Welcome all and come again to this

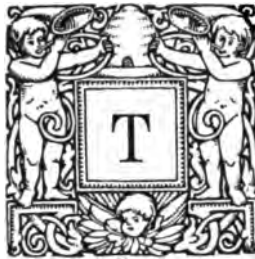
"land in the sun bright deep, where the golden gardens grow,
Where the winds of the north becalmed in sleep their conch shells never blow.
So near to the track of the stars are we that oft on night's pale beams,
The distant sounds of their harmony come to our ears like dreams.
The moon too brings its world so nigh that when the night-seer looks
To that shadowless orb in the August sky, he can number its hills and brooks.
To the God of all our hearts and lyres by day and by night belong.
The breath we draw from His living fires we give to Him back in song."

The tumbling waters on their way to the emerald ocean as they play among the rocks of St. Mary's Falls sing to you a song of ten thousand welcomes.

The Governor's Address

BY HON. FRED M. WARNER

GOVERNOR OF MICHIGAN



THE great work, the completion of which we are now commemorating, is one of the connecting links between the governments of our Nation and of our State. Fostered by both, the construction and improvement of the St. Mary's Ship Canal have borne no small part in maintaining the interest which the government at Washington has in our commonwealth. As we look upon conditions as they exist today, and consider the wonderful development of our State and commercial relations which have been established between Michigan and the entire world beyond our borders, we too often overlook the agencies which have brought about these results. In the consummation of great enterprises and in the enjoyment of the benefits resulting from them, the difficulties overcome and the courage and energy of the men who champion them are too often forgotten. This is especially true as to the construction of this canal. How seldom do we now think of the discouragement with which its promoters were well nigh overcome, and the splendid faith and untiring perseverance of the men who, under most unfavorable circumstances, could still see hope of success and promise of achievement.

It is because of this that the setting apart of an occasional day for the purpose of perpetuating in our memories the great events in the State's development may wisely be encouraged, and it is to the credit of the last Legislature that it made an appropriation for the proper participation by the State in this celebration.

The act of the Legislature in making the appropriation was a fitting recognition of the importance of the canal in the development of the great material and industrial interests of Michigan. When, in the settlement of the difficulty between the States of Michigan and Ohio, that part of the State now embraced in what is known as the Upper Peninsula was practically forced on the State, the country was believed to be of little value, and it was with great reluctance that Michigan accepted the territory in lieu of the valuable tract ceded to Ohio. What a revelation there has been since that time to the people of Michigan and of the country as to

THE GOVERNOR'S ADDRESS

the marvelous resources and untold wealth of the then despised Upper Peninsula. Here are located the greatest copper producing mines of the world. Here are to be found well-nigh exhaustless deposits of iron ore. Here, notwithstanding the carrying on of extensive lumbering operations for many years, still exist vast forests of valuable timber. And now this peninsula is astonishing the people below the Straits by the rapid advancement of its not inconsiderable agricultural interests.

In the development of these great and still unmeasured resources the St. Mary's Ship Canal has borne the leading part. It has been and is the



GOVERNOR FRED M. WARNER

gateway through which have poured the products not only of this peninsula but of the entire northwest—iron from the Mesaba range, wheat from the fertile plains of the Dakotas and Manitoba—constituting a tonnage greater than that which passes through the Suez Canal.

We of the lower peninsula, priding ourselves on the rapid development of all our resources, congratulate you of the upper peninsula that, largely through the building of this canal, you have been able to make

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equal progress in the development of your resources. We are interested in all things that pertain to your welfare as we know that you are interested in everything that pertains to ours.

Let us not forget that this feeling of mutual interest is making of these two peninsulas one commonwealth, not only in name but in fact—a State, one of the greatest in the sisterhood of states.

It is surely not expected of me that I speak at length of the history of this great enterprise, or in detail of its effect upon the industries of the State, the Nation, and the world, for that privilege is properly left to one who is as much a part of this great north country as the very rocks themselves; one who has been an important factor in its every development, and who because of his good works is as well known to us below the Straits as to you above. I can thus refer to no other than Michigan's honored citizen, Peter White.

Michigan deeply appreciates the interest which the national government, the people of our sister States and our friends across the border, have taken in these commemorative events, and I consider it especially fitting that the great English speaking nation of Europe should, through the representatives of the Canadian government, participate in this celebration, for it is to these two great English speaking nations, the one of the old world and the one of the new, working hand in hand, that the world must largely look for its standard of civilization through the centuries to come.

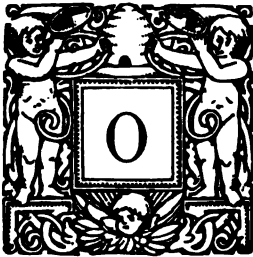
It becomes my delightful duty to welcome you one and all, to this spot which plays so important a part in the great business activities of the world.



Historical Address

BY HON. PETER WHITE

PRESIDENT OF THE LAKE SUPERIOR CANAL SEMI-CENTENNIAL
COMMISSION OF 1905

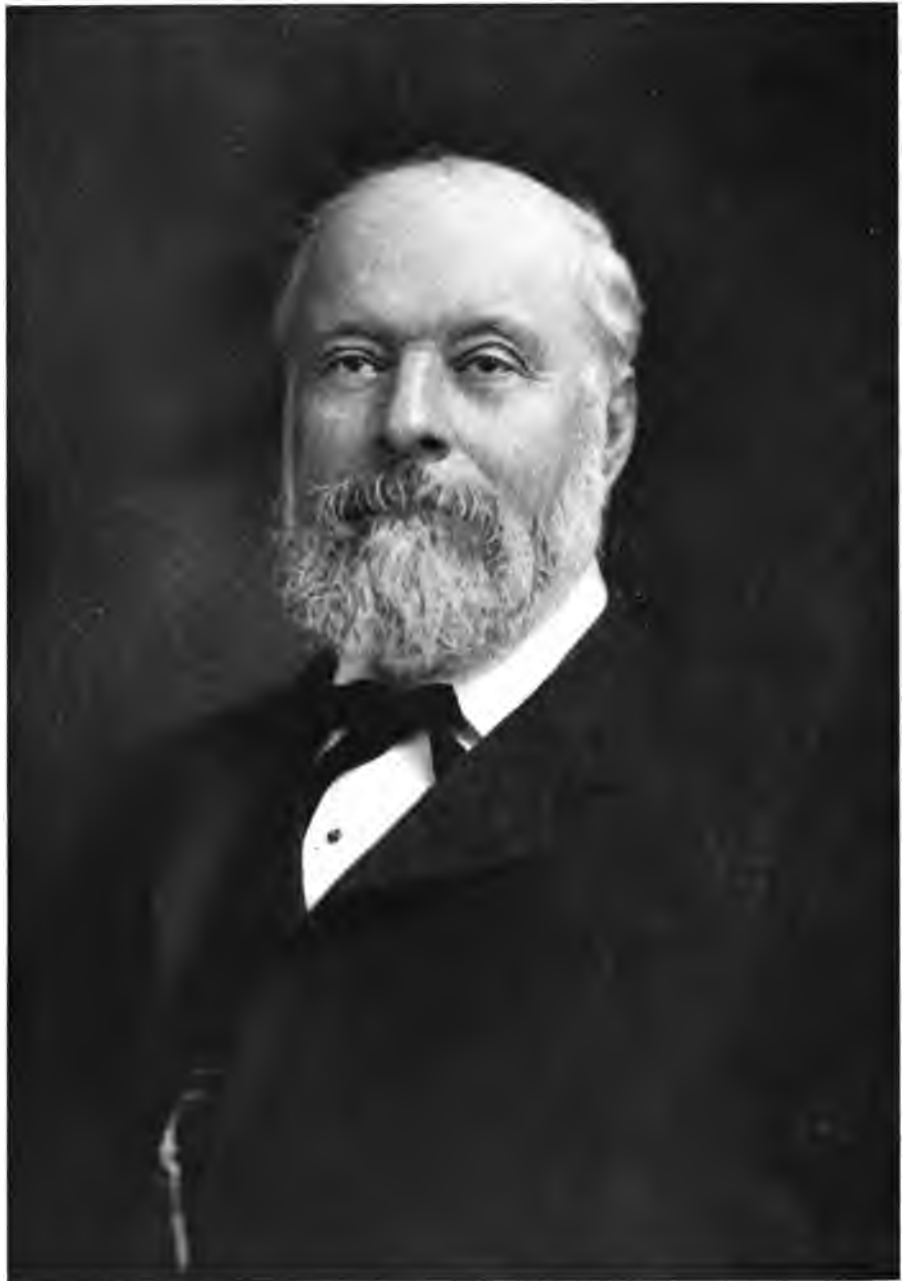


ON April, 1849, I was and for two years had been living on the island of Mackinac, then in many ways relatively a much more important place than it is now. A depot of the American Fur Company was there, and there was another at the Sault. I do not know which of the two was the more important. The business of Mackinac Island dealt very largely with the skins of wild animals.

I had a position in a mercantile establishment, which gave me leisure in winter to go to school. Hon. Edward Kanter, afterwards of Detroit, a very well-known man, was my employer, and I liked my place very much indeed. But with the coming of this particular spring there was a good deal of excitement in the air over an expedition overland to California, and another one which was being fitted out under Mr. Robert Graveraet, to go to the so-called "iron mountains" of Lake Superior. The copper excitement began some time earlier, and there had been, as early as 1846, some exploration and mining, not far from where Marquette now is, for silver lead. But now the iron excitement was something new.

It had been long known by the Indians and others that there was copper in the Lake Superior country, very accessible and very pure. Just why the miners delayed so long in going after it is hard to say. But somehow the Mexican war—the first foreign difficulty in many a long year—and the discovery of gold in California seem to have operated to wake up adventurous spirits everywhere.

Eighteen hundred forty nine was a great year for the American explorer. The '49er of Lake Superior has often clasped hands with the '49er of California, and indeed the men of one of these districts often sought the other extreme of the country to continue their work. The late John H. Forster, of Portage Lake, was a California pioneer of '49. Mr. Robert Graveraet, who captained the proposed expedition to the Lake Superior



HON PETER WHITE, PRESIDENT OF THE SEMI-CENTENNIAL COMMISSION.

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region, was a man of remarkable strength, energy and commanding character; and I was advised by prominent citizens at Mackinac, like Mr. Samuel K. Haring, collector of the port, that the iron mountain country was likely to afford a fine opening for an energetic young man. Mr. Haring had always been very friendly in his attitude toward me, and his advice influenced me a great deal.

It required a good deal of faith for Mr. Kanter was paying me \$30 a month, with board, and the coveted school privilege; and I was to have only \$12 a month and board, for a year, with the expedition. Nevertheless, I joined willingly. Our trip up the lake and river from Mackinac to the Sault was a tedious and difficult one. We were in the old steamer *Tecumseh*,



ST. MARY'S RAPIDS IN 1850.

a side wheeler, and a mere pigmy compared with the steamers which now ply the lakes. It took us eight days to make the trip, as the ice was only just beginning to break up, and side wheelers always made poor work of ice. A railroad in this country had never been thought of; indeed railroads were then in their infancy in the United States. Railroads in America are only about as old as I am. There were then only about 1,600 people in the whole northern peninsula—perhaps a thousand if we leave out the settlements at Mackinac Straits. I have no means of knowing how many Indians there were.

Those Indians who came to Mackinac numbered about 10,000 each year,

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but they came from south of the Straits as well as north, and from as far away as the islands in Green Bay. They were migratory in their habits, ranging far and wide in search of game, fish and furs. There were of course a few Indian trails, but none of them led to the iron mountains of Lake Superior. The water route, I might say, the ice-water route, was all there was for us. The trip on the St. Mary's river, with all its remarkable beauty, is, of course, entirely familiar to all present. But beautiful as the river now is, it has changed immensely both for the better and for the worse since I first saw it. It has changed for the better, since it seems that the world was created for man, and man has now subdued, changed and possessed this stream for his residence, his solace, his recreation and his commerce. This was before the days of lights, dredges, buoys, ranges and channel improvements. I doubt if a draught of over 10 or 12 feet could have been successfully brought up to the foot of the rapids at that day.

The river has also changed for the worse, as its perfectly wooded banks were then absolutely unspoiled by the axe or devastating fire. The forest was unbroken, enormous, beautiful in the extreme. The river was leaping with fish, and the woods full of deer, bear and small game. The beaver were everywhere.

I do not remember all the stops we made, but the Sailor's Encampment was one of them. When we reached the Sault we found also a place very few here would recognize, though many old landmarks persisted here not many years ago. The Rapids were the same as to the central fall, but the canals, and buildings have very much altered the appearance of things, and the Hay Lake cut, especially down by the Little Rapids, almost more than all. There were few wharves and almost no shipping. My recollection on the Canadian side is that only five or six small buildings made any show on the river. On the American side was old Fort Brady, by the water's edge, a few houses on the river bank below it; but the principal part of the town was above it. There was one wide street starting from the Fort grounds, and several very narrow little streets running out of it, as in all French towns. There may have been 500 people all told. Many were French, some were half breeds, some were Americans, some were the resident Indians. The first Jesuit explorers noted that the Sault Indians were not migratory like the others. Some stayed the year through, as fish could always be caught in the rapids, and it was a sort of neutral zone.

The houses were mostly small and low. I do not remember who the commander of the post was, unless it was Lieutenant Russell or Captain Clark. The garrison could hardly number 50 men besides officers. I remember that there was a Baptist mission, presided over by a clergyman whom everyone called Father Bingham. I knew the family afterward quite well and nice people they were. One daughter, named Angeline, afterward

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became the wife of Hon. Thomas D. Gilbert, at one time mayor of Grand Rapids, and a regent of the University. His widow, an estimable lady, still lives in Grand Rapids.* Capt. Sam Moody, one of our party, thought so much of Miss Bingham, that when he found a beautiful lake near Ishpeming, he called it Lake Angeline after her, and "thereby hangs a tale." The ore under Lake Angeline proved so much more valuable than the water in it, that no lake is there now.

There were several stores at the Sault then, and we purchased here the outfit for our expedition. For our prospective voyage on Lake Superior we



SAULT STE. MARIE IN 1850.

From a drawing by Wharton Metcalf, in Judge H. H. Steere's collection.

had a Mackinac boat between 35 and 40 feet long, which had to be hauled and poled up about a mile of rapids, near the shore. My recollection is that it took about three hours to get up past the swift water. Among those residing here then, with whom I became acquainted, was John Tallman Whiting, afterward of Detroit. Here he had charge of the warehouse and dock belonging to Sheldon McKnight, a warehouse and vessel-man, who owned in his time many steamers, among which were the *London*, *Baltimore*, *General Taylor*, *Illinois*, *Pewabic*, and *Meteor*. Mr. Whiting, a most intelligent and agreeable man, was long my correspondent and friend. The agent of the American Fur Company at the Sault was an autocrat named John R. Livingston, as Judge Abbot was at Mackinac.

*Mrs. Gilbert was in the audience who listened to Mr. White's address.

T H E S A I N T M A R Y ' S C A N A L

There were two hotels in those days at the Sault, the Van Anden and the Chippewa. Smith kept the Chippewa, bought the Van Anden also and kept it for many years. The Chippewa House, some of you remember, was not the original. That building burned down. Then Van Anden, who kept the Van Anden House, desiring to remove to Ontonagon to keep a new hotel there called "The Bigelow," sold out his hotel to Smith, who immediately rechristened it the Chippewa.

When we say there was no canal, we ought to add that there was then on the Canadian side of the Rapids a liliputian lock, where it may still be seen. It was said to belong to the Northwest Fur Company. It does not remind one of the present canal locks very much, but then Peter Cooper's locomotive with a barrel for a water tank doesn't look much like a modern mogul but it is the same thing nevertheless. The number of real vessels, not counting craft like our own, then sailing the waters of Lake Superior, was very small, and none of them measured over 200 tons burden. As they had not been built on the big lake, you may wonder how they got over there. They were hauled over on wooden ways, very much as houses are now moved, with rollers and windlasses. The *Julia Palmer*, a side wheeler, and the *Independence* and *Monticello*, both propellers, came over the portage that way. The *Napoleon* was first a sail vessel, but metamorphosed into a propeller. It was said that in a heavy sea she would dip water with her smoke pipe and thus put out the fires. The side wheelers *Sam Ward* and *Baltimore* and propellers *Manhattan*, *General Taylor*, *Peninsula* and several more were brought over the portage in the same way.

A Parisian, once a passenger on the *Baltimore*, when she was making very slow progress up the lake against a heavy head wind, walked out on deck just before dark, took a look at the Pictured Rocks and was much pleased with the view. In the morning before breakfast, he again came out on deck and the panorama astonished him. He exclaimed: "Wat ees dis beautiful sight you have here?" He was told, "You are again looking at Pictured Rocks." He exclaimed, "Wat a great countree! Before you go to bed you walk on de deck. You have a grand view de Picture Rock, den you go to bed, you sleep well all night—de steamer is go ahead all the time—you come out on de deck in de morning, you see de Picture Rock again. What big country you got and what big Picture Rock!" No one told him that the captain finding that he could make no headway against the wind and the waves had run back to Whitefish Point during the night, and that the Frenchman was now looking at the same rock pictures he had seen the previous evening.

Lake Superior was uncharted and only poorly lighted, and navigation was therefore quite as dangerous, or more so, for these steam craft of moderate power, as for our Mackinac boat.

A merchant citizen of the Sault, named Peter B. Barbeau, a very

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prominent man and an old settler, one day met a stranger from off a boat lying at the dock. The stranger said to him, "I take it that you live in this place?" "Yes, sir; I do." "Well, then, I would like to ask you how this town got its curious name, Sault Ste. Marie?" "That, sir," replied Barbeau, "is a corruption." "The town was originally named after a lady called Susan Maria, and by mispronunciation it has become 'Soo Ste. Mary.'"

According to my recollection I was back in the Sault twice after the first visit, before the canal was opened. Once I came down by lake, taking a steamer passage to reach here. On the second occasion I came down with Hon. Abner Sherman on land-office business. We wanted to enter some land at the United States Land Office which was then at the Sault. We



SAINT MARY'S RAPIDS IN 1850.

From a sketch by Wharton Metcalf, in Judge J. H. Steere's collection.

walked all the way, and the journey was one of enormous difficulty and hardship, and a good deal of danger. It took nine days. I wish I had time to tell you incidents of the trip. The distance now from the Sault to Marquette by railroad in almost an air line is about 153 miles, but we couldn't take any such direct route; we had to follow the shore all the way. Fording streams like the Au Train was very dangerous, and once came near costing me my life. Skirting the great Tahquamenon swamp was another heart-breaking task. We would be in the water up to our waists for miles, but we lived through it nevertheless. Such were things before the canal was built. The difference in the appearance of town, shore and vessels was

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not more marked than the difference between our dress then and now. We hardly ever wore coats, but hickory shirts in summer and flannel shirts in winter. Very occasionally we had blanket coats with capote, but more usually if we were cold we put on more shirts. Most housekeepers of today would be greatly surprised at the thickness and beauty of the five-point blankets, which was one of the annual treaty payments to the Indians, one blanket to each adult. Such a blanket was nearly as stiff as a board and was wonderfully warm.

When pay time came, besides the blankets, enough money was distributed to make either \$18 or \$22 to every Indian man, woman and child. I do not remember whether the Indians were ever paid at the Sault, but I have seen 10,000 or 12,000 paid at one time at Mackinac, and the whole beach full of wigwams for miles. The inhabitants were very willing to have them with their attendant drawbacks, as it made trade. But all the northwest furs came down this way by flotilla from Fort William. Before the canal the Lake Superior country was the land of romance, but was closed except to the limited traffic I have mentioned. But the commerce was both the key that opened it, and the result of the opening. Enterprising as were the great French explorers, no trade, but the fur-trade was important in their eyes. It was to their interest, as they saw it, to keep the country wild, a fur-bearing country. The canoe and the bateaux were big enough for them. They never thought of displacing the Indians by large settlements. But when the lumbermen, the miner and the heavy freighter came, the canal became a necessity.

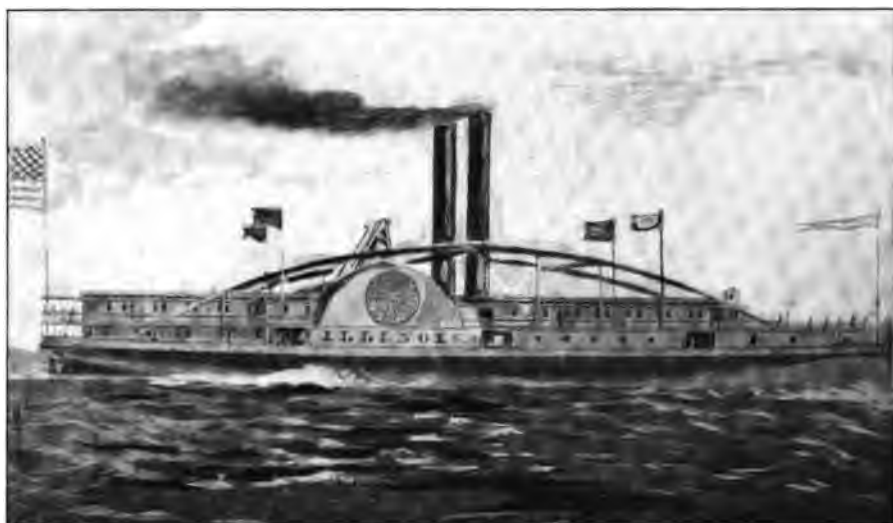
From our present standpoint the projectors would have been satisfied with small things. How would a lock 100 feet long strike you now? Yet such was actually planned, indeed actually determined upon by some persons in authority at a time not far from the achievement of statehood. What surprise would now be felt to hear that the United States government ever opposed the canal! Yet soldiers from Fort Brady actually chased away the first laborers employed by the State to dig the canal, because they were trespassing and had entered on without permission a military reservation. The State and National authorities were at cross purposes for some time.

In passing here is an item worthy of note: In 1840 a bill was introduced in Congress in accordance with a memorial from the Michigan Legislature asking for an appropriation of 100,000 acres of land to aid in building the canal; but Henry Clay, the famous orator and statesman, made a speech against the bill, saying, to quote his own language, "it is a work quite beyond the remotest settlement of the United States, if not in the moon,"—and the measure was defeated.

And who would be supposed to be more alive to the uses of a canal, and more intent to see one built, sufficient for all future demands than the vessel-men? Yet the vessel-men would have been satisfied with a much

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smaller canal than the one actually built. I have in my possession a copy of a letter by Capt. Eber B. Ward, long acknowledged Grand Mogul of all vessel interests, the heaviest proprietor of lake shipping of his day. In his letter he protested most vigorously, but fortunately in vain, against building the canal locks over 260 feet long. The lock was actually made 350 feet long, but 260 would have allowed the passage of the longest vessel he then had, and he did not foresee the demand for anything bigger. But what really dictated his letter was the fear that if a lock 350 feet long were begun, it would never be finished. There was the vast land grant of course, but Captain Ward had so little faith in the value of the granted lands, that he estimated their selling value at only 25 cents an acre. He thought they would sell for enough to build a canal lock 260 feet long, not one of 350 feet.



THE SIDE-WHEEL STEAMER ILLINOIS, THE FIRST STEAMER THROUGH THE LOCKS.

Captain Ward died, as it seemed to some of us, only a few yesterdays ago, and doubtless lived to change his mind. But with our present knowledge of the ores that have been dug, the timber cut and the crops shipped from Lake Superior districts, his fears were as erroneous as his land valuation. Two reflex influences are here to be noted. The canal made the ore trade, and then the ore trade made the canal. Without a canal ore could not be shipped at all. With a small shallow canal the finished product of the smelter seemed a more reasonable freight than the ore. But still the ore trade began, and the tonnage of all sorts speedily outstripped the capacity of the canal. It was enlarged and enlarged again, so that a trade which employed at first vessels of two or three hundred tons burden, is now rapidly tending to be monopolized by carriers of 8,000 to 10,000 tons

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capacity, each with a consort, so that one engine can pull to Cleveland, Ashtabula or Erie 16,000 to 18,000 tons of ore. In 1855 it was estimated that 30,000 tons of freight passed the canal. In 1881 the tonnage had grown to 1,567,000 tons. In 1886 the enlarged locks carried 4,527,000 tons. In 1901 the second enlargement with the canal open 230 days, 25,000,000 tons of freight were passed,—three times the commerce of the Suez canal, and six times that of Kiel.

My thesis is this: The opening of the Sault canal has been of the largest benefit to the whole United States of any single happening in its commercial or industrial history.



FORT BRADY IN 1850.

From a sketch by Wharton Metcalf, in Judge J. H. Steere's collection.

Every State in the Union has benefitted by it. A long water-haul is so enormously cheaper than rail-haul, that the ability to ship large cargoes direct from Lake Superior ports, 1,200 to 1,500 miles, or even across the seas, has transformed the United States and changed her position among the nations. The grain of the northwest now finds an eastern or foreign market with surprising ease. Flour goes direct from Duluth to Liverpool. Many fields and millions of acres are now under plow in Dakota and the Canadian northwest, as the result of the canal. Bread is cheaper in Massachusetts than otherwise would be possible, and thus the canal helps the happiness of the laboring man. The lumber of Michigan, Wisconsin,

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Minnesota and now of Oregon and Washington has passed or is passing through the canal. Without this transport it would be impossible that the American people could be so comfortably housed, or that American timber could have been sold abroad for our national wealth and supremacy. The copper of Michigan is the purest in the world; it is usable for results not attempted with the product of other mines of other regions. It is sold all over the world, after passing the canal. It carries the telegraph, the telephone, the electric railway everywhere. It is used in all the arts. The age of electricity is due to the canal. The iron of Michigan, the ores of unexampled purity have passed and are passing the canal. Before this movement began the iron industry of America chiefly engaged with the



NAVAL PARADE: GOVERNOR WARNER AND STAFF LEAVING THE REVENUE CUTTER MORRILL TO VISIT THE MICHIGAN NAVAL RESERVE STEAMER YANTIC.

lean Pennsylvania ores was having a fierce struggle for existence. The Lake Superior ores are rich enough and varied enough to mix with the Pennsylvania ores, and have saved the iron and steel industry of Pennsylvania, and so in America. The iron industry is the key of the commercial supremacy of the world. Before the canal we were dependent on the British Isles. Now we can undersell the world. The canal made Pittsburg the great city that it is today; it made cheap rails and railways possible; it made cheap tools, cheap wire, and has fenced the woodless prairies; it has made cheap nails and implements of all kinds. It has sent our rifles,

Albany.

THE SAINT MARY'S CANAL

shovels, hammers, reapers, bridges, and rails all over the world. The American ironclad is the child of the canal.

Kitchener went to Khartoum with the freight of this canal. No English company would agree to furnish the Albany bridge necessary for his advance in less than eighteen months. An American contractor set it up in three months. Carnegie builds libraries and rewards heroic virtue with the fruits of a business impossible without the canal. The coal of the south returns by the canal to temper our winters and to drive our engines.

Population is the child of the canal; industry another; comfort another; education and philanthropy twins of the canal; agriculture, manufactures, transportation, world intercourse, commercial supremacy, and the world's acreage the offering of the canal. The canal has reduced the price of steel rails from \$150 a ton to \$26 and occasionally even less. King Iron used to reign from an English throne, now his throne is in America. We are now the great creditor nation, and as such have the greatest possible influence in the peace of the world.

On the authority of a Bishop of the English church, I assert that the United States has now the greatest power for world-peace of any nation, or that any nation ever had. Our power is largely the result of this canal. If any one knows of anything bigger in the history of civilization I should be glad to hear of it. What was the Colossus of Rhodes? What is the great Pyramid? Where are the hanging gardens of Babylon? The biggest thing on earth is known by its results, and the biggest thing is the Sault canal. But bigger than anything created is the creator; and larger than anything conceived of is the mind that conceived it.

The Erie Canal that has done so much for the State of New York, is 363 miles long from Albany to Lake Erie, and was completed Nov. 4, 1825. The first shovelful of dirt was taken out of it at my birth-place, at Rome, N. Y., July 4, 1817. Its completion was celebrated on a certain day. All the nations of the world were invited to participate in the celebration, and every nation that had a war vessel sent one with representatives to assist in the celebration, bringing all manner of gifts as offerings. One vessel brought barrels of water from the River Jordan which were poured into the canal at Albany to bless and prosper the wonderful great waterway. The whole cost of this canal was over \$62,000,000, including all enlargements. In 1883 its use was made free. It makes a continuous water connection from the Great Lakes to the Atlantic Ocean, and yet, great as its benefits are, it cannot for one moment be compared to this canal, only a little over one mile in length.

Let me give you a few figures to indicate how sensibly the world's production of iron and steel has been influenced since this canal came into being. First of all I will give, for comparative purposes, the production of pig iron in the United States and Great Britain for some years prior to the construction of the canal.

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PRIOR TO THE CANAL.

UNITED STATES.		GREAT BRITAIN.	
PIG IRON.		PIG IRON.	
Year.	Tons.	Year.	Tons.
1820.....	20,000	1820.....	400,000
1830.....	165,000	1830.....	677,417
1840.....	286,903	1840.....	1,396,400
1850.....	563,755	1850.....	2,210,000
1854.....	657,337	1854.....	3,069,838

Thus it is seen that in no year prior to this canal, which made the Lake Superior deposits available, did the United States produce much more than 600,000 tons of pig iron. Let me now exhibit a statement tracing the rise and decline of the British pig iron industry and showing as well the constant ascendancy of the United States in pig iron production, coincident with the annually increasing flow of Lake Superior ore through this canal.

SINCE THE CANAL WAS COMPLETED.

Year	Total Shipments Lake Superior Ore Gross Tons	Pig Iron Production in the United States Gross Tons	Pig Iron Production in Great Britain Gross Tons
1855.....	1,449	700,159	3,218,154
1856.....	36,343	788,515	3,586,377
1857.....	25,646	712,640	3,659,377
1858.....	15,876	629,548	3,456,064
1859.....	68,832	750,560	3,712,904
1860.....	114,401	821,223	3,826,752
1861.....	49,909	653,164	3,712,390
1862.....	124,169	703,720	3,943,469
1863.....	203,055	846,075	4,510,040
1864.....	243,127	1,014,282	4,767,951
1865.....	236,208	831,770	4,825,254
1866.....	278,796	1,205,663	4,523,897
1867.....	473,567	1,305,023	4,761,023
1868.....	491,449	1,431,250	4,970,206
1869.....	617,444	1,711,287	5,445,757
1870.....	830,940	1,665,179	5,963,515
1871.....	779,607	1,706,793	6,627,179
1872.....	900,901	2,548,713	6,741,929
1873.....	1,162,458	2,560,963	6,566,451
1874.....	919,557	2,401,262	5,991,408
1875.....	891,257	2,023,733	6,365,462

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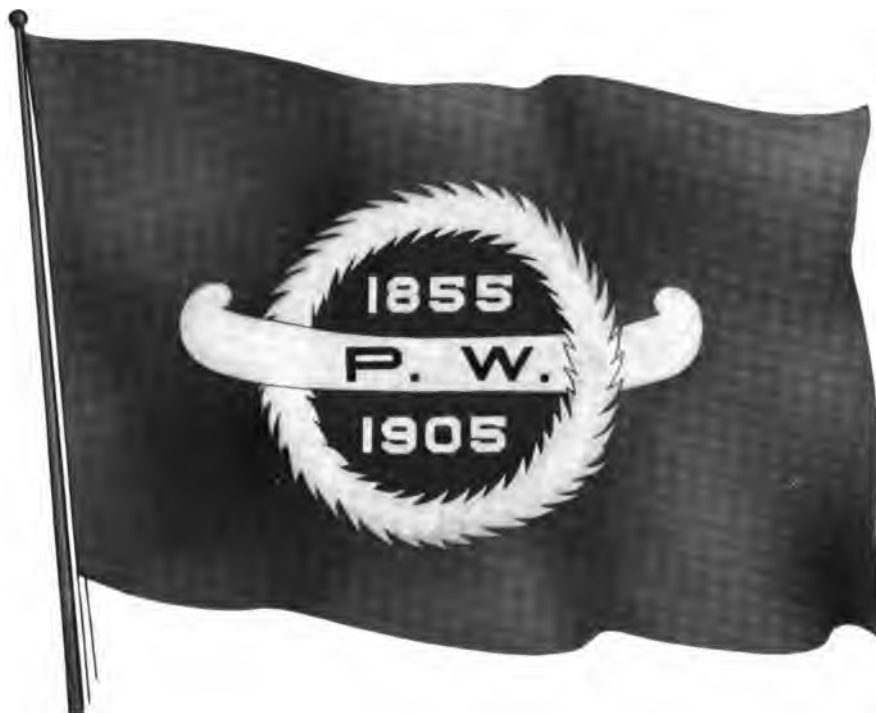
Year	Total Shipments Lake Superior Ore Gross Tons	Pig Iron Production in the United States Gross Tons	Pig Iron Production in Great Britain Gross Tons
1876.....	992,764	1,868,961	6,555,997
1877.....	1,015,087	2,066,594	6,608,664
1878.....	1,111,110	2,301,215	6,381,051
1879.....	1,375,691	2,741,853	5,995,337
1880.....	1,908,745	3,835,191	7,749,233
1881.....	2,306,505	4,144,254	8,141,449
1882.....	2,965,412	4,623,323	8,586,680
1883.....	2,353,288	4,595,510	8,529,300
1884.....	2,518,692	4,097,868	7,811,727
1885.....	2,466,372	4,044,526	7,415,469
1886.....	3,568,022	5,683,329	7,009,754
1887.....	4,730,577	6,417,148	7,559,518
1888.....	5,063,693	6,489,738	7,998,969
1889.....	7,292,754	7,603,642	8,322,824
1890.....	9,012,379	9,202,703	7,904,214
1891.....	7,062,233	8,279,870	7,406,064
1892.....	9,069,556	9,157,000	6,709,255
1893.....	6,060,492	7,124,502	6,976,990
1894.....	7,748,932	6,657,388	7,427,342
1895.....	10,438,268	9,446,308	7,703,459
1896.....	9,916,035	8,623,127	8,659,681
1897.....	12,469,638	9,652,680	8,796,465
1898.....	14,024,673	11,773,934	8,609,719
1899.....	18,251,804	13,620,703	9,421,435
1900.....	19,059,393	13,789,242	8,959,691
1901.....	20,593,537	15,878,354	7,928,647
1902.....	27,571,121	17,821,307	8,679,535
1903.....	24,289,878	18,009,252	8,935,063
1904.....	21,822,839	16,497,033	8,562,658

From this table it will be seen that the United States reached its high-water mark in pig iron production in 1903, when 18,009,252 tons were produced as against 8,935,063 tons in Great Britain, or more than once again as much as Britain. The present year of 1905 is, however, expected to be the record-breaking year of all when more than 30,000,000 tons of Lake Superior ore will come down the lakes, and when the furnaces of the United States will, according to the monthly rate of the present year, safely make more pig iron than Great Britain, Germany and France combined. It is an interesting commentary to be able to state as a fact that

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one single company in the United States, viz.: the United States Steel Corporation, produced in the year 1904 a greater steel tonnage than was made in the whole of Great Britain.

The total amount of steel produced by the United States Steel Corporation last year was 9,167,960 tons, out of a total in the United States of 14,422,101 tons. Great Britain's total production was in 1904, 5,134,101 tons of steel, a little over one-half as much as the United States Steel Corporation product and a little over one-third as much as the whole United States product.



THE PETER WHITE FLAG PRESENTED TO THE MARIGOLD BY HENRY M. CAMPBELL, ESQ., AND FLOWN AT FOREMAST OF THAT VESSEL DURING THE CELEBRATION, MR. WHITE BEING THE GUEST OF COMMANDER CHARLES E. FOX, U. S. N.

That shows the great advantage that this country has in the manufacture of iron and steel since the entire steel making capacity of the United States Steel Corporation is exclusively from Lake Superior ores. Last year the United States produced more pig iron than Great Britain and Germany combined. There are plenty more very interesting figures for us to contemplate, but I fear I will tire you and so forbear. The increased mileage in railroads in the United States since 1855 is astounding and worthy of comment, but time forbids.

THE SAINT MARY'S CANAL

But I cannot close without pointing out the fact that the freedom of the canal is almost greater in its influence than the canal. This great waterway is free to the British flag as to our own, as are all the canals of the U. S. government. The Canadians themselves have been as generous in allowing us the free use of their canal on the other shore at all times and under all circumstances as we could possibly desire them to be. They have set us an example of liberality of good will that we must always profit by, and be just as generous in return. This, then as we hinted, is Lake Superior's declaration of independence.

This vast land locked sea with all its tributaries is free, and its freedom means these infinite results, the greatest addition to freedom since freedom came. And we who have seen its development and have worked the forests and mines which have chiefly made its commerce, may pause in wonder that so few and so feeble a people living under so cold a sky should have been permitted to share so largely in changing the seat of empire, and enlarging the happiness of the world.

Who that celebrates this mighty triumph can forget the men who dreamed it and the men who made it? Governor Mason had it in his mind, but failed to bring it to pass. A great thought is next in honor to a great deed. We have Charles T. Harvey, the builder of the first lock, with us today. General Weitzel, who built the first enlarged lock was the officer who took possession of captured Richmond. Poe, whose name adorns the largest lock, was famous on many a stricken field. Both wrought themselves as well as their names into these locks, and both were capable of more. If men, whose genius made these locks, and those whose interests and ability urged on, expanded, and used them were named together, it would prove that peace is greater than war, that commerce is the handmaid of peace, and if the men of the twentieth century outstrip those of the nineteenth, who wrought this wonder, the race of giants must return.



The Vice-President's Address

BY HON. CHARLES W. FAIRBANKS

VICE-PRESIDENT OF THE UNITED STATES



E cordially welcome our friends from Canada to share in this celebration. The event we commemorate is of mutual interest to the people of the two countries. Here, side by side, are three great locks—two constructed by the United States, and the other by the Dominion of Canada. Through them passes interchangeably the commerce of the two countries. Here they will stand in close fellowship for centuries to come, discharging their important functions in the transportation of commerce. We trust that they will always be symbolical of the relations and neighborly regard of the two people through whose veins flows the blood of a common ancestry.

We owe allegiance to different institutions. Above us are different flags, emblems of the mightiest powers upon this earth. We have no sense of rivalry except in those ways which make for a higher and better civilization.

There are no fortifications along our common frontier; no battleships upon the waters which divide us. These are not needed now, and we trust that in God's providence they shall never be required. We are the respecters of each other's institutions, of each other's laws, of each other's rights. We are bound to each other by strong social ties and sentiments of mutual respect.

Competition in trade is a vitalizing factor. Competition in commerce is not born of unfriendliness. It has its inspiration in selfishness, but it is in that just selfishness which has been the life of trade from its beginning until now. One of our wisest and most just Americans, William McKinley, whose good name is the precious heritage of the human race, said at Buffalo:

"Though commercial competitors we are, commercial enemies we must not be."

The national policies of the United States and Canada may not be in

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accord. If they be not it will be due to no unfriendliness of purpose, but to that sense of duty which each primarily owes to its own.

We look upon our commercial development, since this canal was dedicated to commerce, with the utmost satisfaction. All sections of the country have gone forward, expanding in commercial strength, but nowhere is there to be found more remarkable growth than we witness in the territory which is tributary to the St. Mary's canal. The opening of this canal was the beginning of an era of tremendous growth. It has risen from an average of twelve thousand tons per annum in the first decade. to twenty-five mil-



HON. CHARLES W. FAIRBANKS, VICE-PRESIDENT OF THE UNITED STATES.

lions of tons per annum in the ten years ending in 1904. Last year more than sixteen thousand vessels passed through these locks, carrying more than twenty-one and one-half million tons of freight, valued at over three hundred and forty millions of dollars.

The maximum has not yet been reached. The cities which sit in majesty and power upon the shores of the Great Lakes are rapidly increasing in population and in commercial importance. The great mines are

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pouring their wealth of cheap material into the channels of trade in rapidly increasing degree. The great agricultural regions are sending their vast surplus to keep millions in the east and beyond the Atlantic. The commerce of the United States has increased beyond the dreams of the most optimistic of a half-century ago. Our foreign commerce has with rapidity attained a vast volume. It is insignificant, however, in amount and value when compared with our internal commerce. Railways are taxed to their utmost capacity, and our ships upon inland water routes are loaded to the limit of their carrying power, bearing the products of a progressive and great people. Old facilities of interchange are found inadequate to meet the current needs. They are constantly enlarging. New instruments of intercommunication are created. The capacity of all these is quickly taxed. New facilities create new traffic. The wants of the people expand with increasing provision to meet them.

This canal is identified with the period of our most rapid industrial development. The ever-increasing procession of ships through it tells the story of our expanding production, growing trade and increasing industrial importance.

The scepter of commercial power is speedily passing into American control. If we are but true to the vast opportunities which lie at our hands, the United States will become the acknowledged leader in the commerce of the world. The conquest will be achieved by the men of trade and not by the men of war. It will come by an irresistible law of commercial gravity. It will come because of our increased productive capacity; because of our superior ability to supply the needs of others; because of the illimitable resources of our farms, mines and factories; because of multiplied methods and enlarged facilities of cheap transportation from the centers of production down to the seaboard. We take pride in our commerce because it tends to lift the country to a higher and better level. It tends to equalize conditions. It enlarges the opportunity of labor and capital, and gives our people more homes, and fills them with more of the comforts of life. It brings communities and trade centers together in common interest. A higher civilization follows in its pathway.

While we are a commercial people, we are not subservient to commercialism. We seek to expand commerce as a means, not as an end. We seek its conquests that we may minister to those high aspirations which are the birthright of the Anglo-Saxon race. It is a well-recognized maxim of trade that commerce will follow the lines of least resistance. The Great Lakes afford cheap transportation for the vast commerce tributary thereto. The control by the government of the St. Mary's canal, its enlargement and improvement, has resulted in stimulating traffic. It insures just and reasonable transportation charges over a vast area, and will become, as the density of our population increases, and as trade expands, of incalculable importance in the future.

THE SAINT MARY'S CANAL

The United States has been liberal in advancing the interests of commerce. She has been generous in the improvement of rivers and harbors, to the end that they should be adequate to meet our advancing national needs. She has appropriated liberally for canals. The St. Mary's canal is not the only evidence of this fact. Her most important work in promoting the expansion of our commerce is upon the Isthmus of Panama. The enterprise there is of vast magnitude—one which has defeated all efforts hitherto. It is undertaken upon broad lines, for it will welcome impartially the commerce of the world. What others have been many years in endeavoring to accomplish, we shall not do in a day. Much money, time and patience will be required to complete the work. But it will be built, for the United States has put its powerful hand to the task.



NAVAL PARADE: THE MARIGOLD WITH MEMBERS OF THE SEMI-CENTENNIAL COMMISSION
ON BOARD.

It is a gratifying fact that the enormous commerce of the United States upon the Great Lakes is carried in American ships. The vessels which pass through this canal, carrying our products, bear the flag of the United States. They were built in our shipyards and are manned by American seamen. When we come to commerce upon the high seas, we largely give over its carriage to ships built abroad and sailed by alien owners. A large part of the commodities which pass through this canal to the Atlantic seaboard for trans-shipment to foreign countries, is transferred from these American-

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owned and American-operated ships to vessels of foreign ownership and foreign register. This would seem to be incompatible with a wise national policy.

While the United States promotes commerce, it makes for peace. Through the timely intercession of President Roosevelt, one of the bloodiest wars in history is about to close. The commissioners of the belligerent powers will assemble in a few days, under the protection of the American flag, to deliberate with each other. We trust that their great mission may be successful; that they may be able to restore peace and disband the great armies confronting each other in the Orient.

We are assembled under happy auspices. All our people are engaged to the utmost in promoting the manifold arts of peace. They are busy in trade and commerce, science and education, agriculture and manufacture. They are active in charity and philanthropy, seeking to make the day in which we live the most luminous in the history of mankind.



The Greeting of the Dominion of Canada

BY HON. RODOLPHE LEMIEUX

SOLICITOR-GENERAL OF THE DOMINION OF CANADA



I NEED not say how proud I feel to be the guest of the American government on this, the semi-centennial celebration of the construction of the St. Mary's Canal, the great connecting link between the waters of Lake Superior and Lake Huron. In the name of the Canadian government, which it is my happy privilege to represent officially with my distinguished friend the Speaker of the Senate [Hon. Raoul Dandurand], let me offer my sincere thanks to the members of the Commission, who have so successfully organized this demonstration, and the American citizens, who have extended to me such a hearty welcome.

Sir, if ever there was an occasion when both Americans and Canadians should unite in the celebration of an event calculated to bring, nay, to assure, peace and harmony between the two countries, this indeed was the most fitting, the most appropriate. The great republic and the Dominion of Canada, must and will, I trust forever, in their respective spheres of influence, look for no other rivalry on this broad continent than that which is the direct outcome of the arts of peace. Here are two countries existing side by side, with the same boundary for 4,000 miles, each of them possessing about 3,000,000 square miles of territory, with railways binding them together, with watercourses of a gigantic magnitude inviting communication, with geographical conditions knitting them closely together, with a similarity of races, laws, religion, and to a certain degree, of popular institutions. Can it be doubted that with the good will of both and with a fair policy in matters concerning trade relations, there is not in store for them a future of such brightness as will overshadow the records of all other nations, past or present?

One of the great factors in the future development of both countries will be the immense resources—I should say the inexhaustible riches—in

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the great western land. What was practically a lone land only a few years ago, what some of the old men in the last generation knew only as a solitude, has become the granary of the world, the new field, the new promised land where millions of people have settled permanently and where the hum of industry and commerce has replaced the incessant bloody conflicts between Indian tribes. Sir, it has been said that there is no more potent factor of civilization than commerce. If it be true, then I say that fifty years ago, when the American government decided to build this canal in order to stimulate the interchange of trade between the west and the east, it rendered the whole continent a most valuable service.



HON. RODOLPHE LEMIEUX, SOLICITOR-GENERAL OF THE DOMINION OF CANADA.

For many years, in fact until recently, we in Canada, shared with you the advantages accruing from the canal, but as we emerged from boyhood to manhood we decided to get for our own territory what you have obtained for yours. This quality is not a sign of hostility, it is, I am pleased to say, a sign of friendly rivalry. It has, for the present at least, brought to completion our great canal system. I need not dwell at any length on its

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importance. Let it be said, however, in view of the results already attained, that it is of such a comprehensive character that it has, and will as heretofore enable Canada to compete successfully for the transit trade of the great western country and the development of cheap routes of communication with the principal markets of the world. It has stimulated the commercial development of the whole Dominion and bound all sections together in the bonds of mutual amity and interest.

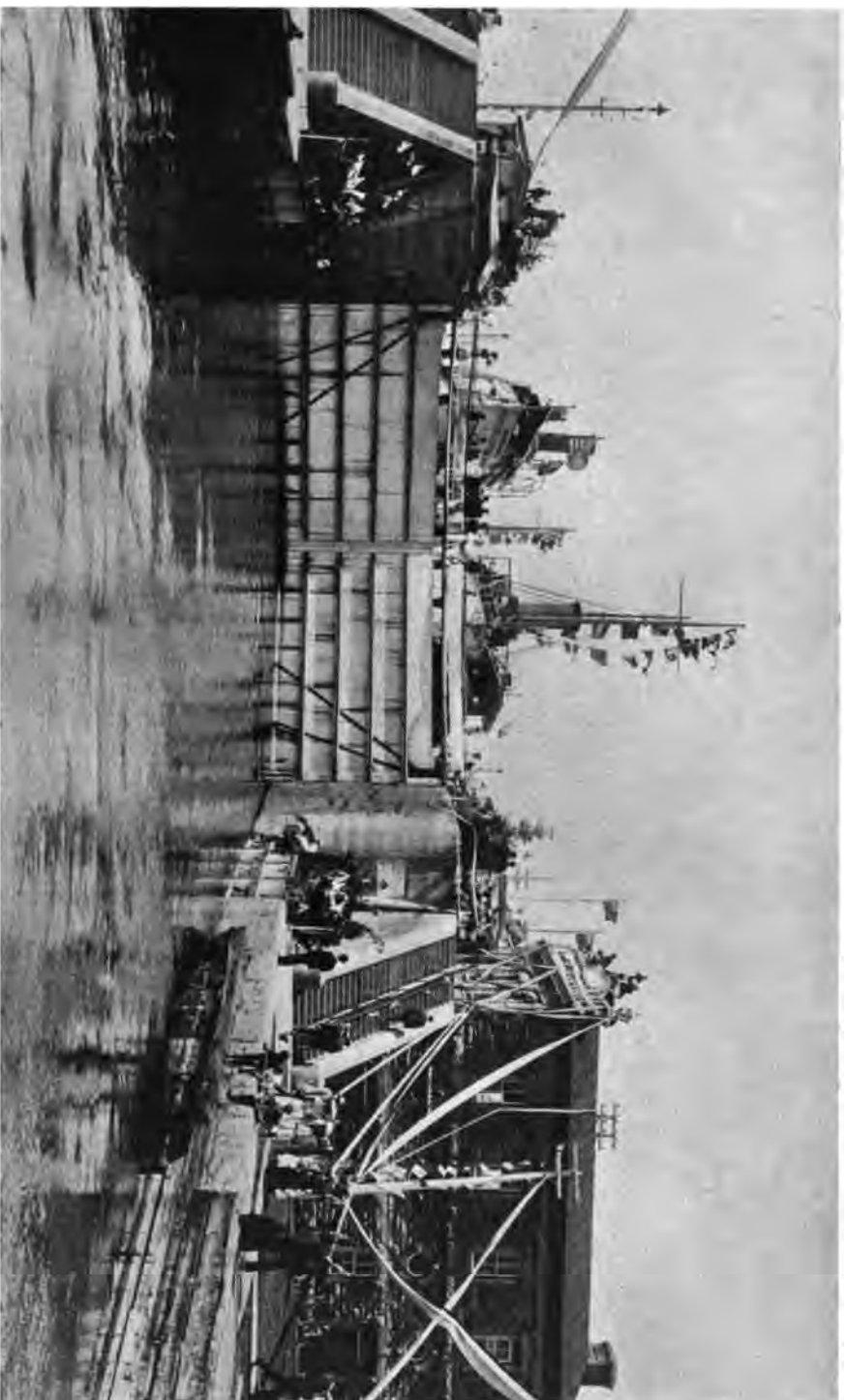
We, in Canada, believe that the expense of such improvements is insignificant compared with the direct benefits commerce has derived from it. We believe also that the supremacy of the carrying trade of the great west will be in the near future between New York, Montreal and Quebec. Nature has given those cities the advantage of position and route, and, speaking more especially for Montreal and Quebec, I can safely predict for them a foremost position among commercial communities. When a vessel of 13 or 14 feet draught can load at Fort William and proceed through the Great Lakes to Montreal or Quebec without breaking bulk and return laden with goods, transportation will be brought down to its cheapest terms.

The French had long before the cession of Canada to England, understood the necessity of using in the interest of trade, the large water stretches. Small locks for batteaux had even been constructed by them at the Cascades, the Coteau, the Long Sault, and, if I mistake not, on the Canadian side of the Sault Ste. Marie falls. As far back as 1804, these were reconstructed at larger size and in improved positions by the royal engineers, as military works. While furs were the only exports, the batteau was suited to the trade in both directions; but when agricultural export commenced, grain was first sent down, and that before 1800, on the rafts, and in scows which were broken up and sold in Montreal.

It was the agitation of the Erie and Champlain canals which early drew the attention of the Canadians to the competition with which they were threatened. It was, so to say, a renewal of that strife for the commerce of civilization which had existed for the fur trade between the English colonies and Montreal and Quebec before 1759. In this, as in many other things, our enterprising neighbors have set up the example of activity, energy and commercial genius.

It was in 1817 that the canal bill passed at Albany. In the month of November, 1817, the projects of connecting Lakes Erie and Ontario by the Welland Canal first appeared in print. In 1818 a company was incorporated to construct the Lachine Canal, and another in 1819 for the construction of the Chambly Canal. Thus, movements were set on foot to compass the objects aimed at by the State of New York before the completion of her canals had demonstrated their success.

But what a change has taken place since those eventful days, through the construction of the canals. The old voyageurs, on their way from



NAVAL PARADE: THE FLEET IN THE CANADIAN LOCK.

THE SAINT MARY'S CANAL

Montreal to Lake Superior went up the Ottawa and across to Georgian Bay, portaging their boats when necessary. What a marvelous development this canal system has given to the western trade. In the early years of the eighteenth century, not to speak of the time of the French domination, the cost of carriage by every conveyance then in use, was simply enormous. In his early history of inland navigation, Mr. Castell Hopkins makes a very interesting comparison between the pioneer methods of carrying products with our days of swift transportation. A bushel of Indian corn cost by the time it reached Grand Portage, about 30 miles above Fort William, twenty shillings sterling, and Sir Alexander MacKenzie tells us it was the cheapest article of provision the Northwest Company could feed its men with in the first year of that century. For the same sum, ten bushels of corn can now be purchased in England, after having been carried a thousand miles in the interior of America and across the Atlantic. Before the Rideau and St. Lawrence canals were built, the carriage of a 24-pound cannon between Montreal and Kingston cost between £150 and £200. In those days eighteen bushels of wheat were required to pay for a barrel of salt, and one bushel of wheat for a yard of cotton.

Sir, one cannot stand on this spot without recalling to his memory the men, who, it is conceded by every one conversant with history, were the pioneers of the great western land. The first civilized men who pierced the interior of the continent were French adventurers, missionaries and traders from old Canada, while the country was in possession of France. The exploits of these men, who, without the slightest knowledge of the territory, penetrated among numerous savage tribes, remains of thrilling interest. Finally they passed from the St. Lawrence through the great lakes of Huron and Superior, and by the innumerable intricacies of streams, lakes and portages to Lake Winnipeg. Then they ascended the river Saskatchewan to about 103 degrees meridian, where they planted their most distant trading post until 1731, when La Verendrye and his sons advanced further in the prairies than any of their predecessors.

Let me briefly refer to some of the names which would alone immortalize the memory of France on this vast continent. It is Champlain, the founder of Quebec, who discovered Lake Champlain in 1609, the Ottawa River in 1613, Lake Ontario and Lake Nipissing in 1615, and Lake Huron in the same year. It is Jean Nicolet, who in 1634 discovered Lake Michigan. It is Chaumonot and Brebeuf, who discovered Lake Erie in 1640, whilst Lake Superior was first visited by some unknown *courcur des bois* in 1659. It was on June 17, 1673, that Joliette and Marquette first sighted the upper waters of the Mississippi, when they paddled down the river past the mouths of the Illinois, the Missouri and the Ohio. Nicholas Perrot was the first European to stand upon the site of Chicago, and the whole great lake region was first formally annexed to France by the Intendant Talon. Who

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will ever forget the names of Cavalier de LaSalle, de la Verendrye, Albanel and Hennepin?

I notice with great pleasure that our friends across the border, practical and matter of fact as they are, have remembered the heroic struggles of those pioneers. Cities, towns and villages bear the names of the French discoverers, whilst under the dome of the capitol at Washington, the statue of that great Jesuit missionary, Father Marquette, stands before the world.

The great historian Parkman, who has so vividly depicted the struggles of France and Great Britain for the supremacy of North America, has also published chapters of the most intense interest on the early days of French domination over the Great Lakes. I have just quoted the name of Intendant Talon, one of the most remarkable men of the French regime. His name must forever be associated with the Sault Ste. Marie, because it is under his guidance and orders, that on this very spot where we stand today, the proclamation by which the King of France took possession of the whole western land, was read. He was probably the most efficient intendant that the French kings ever sent to America. He dreamt of a great French empire on the continent of America. In the words of Parkman: "He meant to occupy the interior of the continent, control the rivers, which were its only highways, and hold it for France against every other nation. On the east, England was to be hemmed within a narrow strip of seaboard; while on the south, Talon aimed at securing a port on the Gulf of Mexico, to keep the Spaniards in check, and dispute with them the possession of the vast regions which they claimed as their own."

Such was, sir, the dream of Jean Talon, and for the realization of such a dream, what were his instruments? A few Jesuit missionaries, some adventurous officers, *coureurs des bois*, fur traders, hunters and explorers! In 1670, he ordered Daumont de Saint-Lusson to search for copper mines on Lake Superior and at the same time to take formal possession of the whole interior for the king. I wish I could relate the long and eventful journey of Saint-Lusson and his companion, Nicholas Perrot, the celebrated voyageur, from LaChine to Sault Ste. Marie; how in their frail embarkations they reached the coveted goal, after having invited all the Indian tribes roving around the lakes to attend the great ceremony of June 14, 1671.

On that date, here at Sault Ste. Marie, at the foot of the rapids, were present Saint-Lusson, Nicholas Perrot, four Jesuits, Claude Dablon, Gabriel Druilletes, Claude Allouez and Louis Andre, and fourteen tribes with their chiefs. On the top of the hill, had been erected a large cross and besides, a post of cedar had been planted, bearing the royal arms. Father Dablon first blessed the cross while the Frenchmen sang *Vexilla Regis*; and then, Saint-Lusson advanced, and holding his sword in one hand, and raising with the other a sod of earth, proclaimed in a loud voice: "In the name of the most high, mighty, and redoubted monarch, Louis XIV of that name

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most Christian king of France and Navarre, I take possession of this place Sainte Marie du Saut, as also of lakes Huron and Superior, the island of Manitoulin, and all other countries, rivers, lakes, and streams contiguous and adjacent thereunto, both those which have been discovered and those which may be discovered afterwards, in all their length and breadth, bounded on the one side by the seas of the north and of the west, and on the other by the south sea; declaring to the nations thereof that from this time forth they are vassals of his majesty, bound to obey his laws and follow his customs: promising them on his part all succor and protection against the incursions



BLOCKHOUSE OF THE NORTHWEST FUR COMPANY, REBUILT AND OCCUPIED AS AN OFFICE
BY MR. FRANCIS J. CLERGUE.

and invasions of their enemies; declaring to all other potentates, princes, sovereigns, states and republics, to them and their subjects, that they can not and are not to seize or settle upon any part of the aforesaid countries, save only under the good pleasure of his most Christian majesty, and of him who will govern in his behalf; and this on pain of incurring his resentment and the efforts of his arms. *Vive le Roy!*"

Over two centuries have elapsed since the envoy of Talon took possession of Sault Ste. Marie, and nearly all the interior of this continent,

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in the name of Louis XIV. Although France has left her footprint deep in the sands of time and history, yet her dream of controlling the destinies of America did not materialize. Her civilization, her literature, her language, her religion shall forever be known, and the presence of three million French Canadians scattered from one end of the continent to the other, is the living demonstration that France is immortal.

Sir, in the struggle with nature, in the stress of commercial activity, the average man is too apt to live almost wholly in the present and to forget the debt he owes to the past. In the celebration of the event which has brought us together today, I thought that I should recall the proud deeds of the French pioneers. In September, 1759, when Wolfe and Montcalm fell on the plains of Abraham, the whole North American continent became British. The thirteen colonies soon, however, revolted and proclaimed their independence, thus giving birth to the American Republic.

The Dominion of Canada, although enjoying as much constitutional freedom as the United States, still remains a British possession. Our allegiance to Great Britain and her beloved King Edward VII, is the more sincere because it is based on gratitude. The mother country has, long ago, given us a constitution under which civil and religious liberty have grown and developed. We are happy under British rule, we are perfectly free. We do not look for annexation, we do not wish it. We believe that the American continent is broad enough to contain two commonwealths, the American Republic and the Dominion of Canada. We wish to live in friendship and harmony side by side with our great, our colossal neighbor. Her enormous wealth has not excited our envy, but it has given in our country rise to a feeling of emulation. We wish to imitate your example and follow in your footsteps.

Canada is entering upon a new era. Our resources are vast, in fact, inexhaustible. We can support a population of 100,000,000 souls. We have room in our Canadian west for 50,000,000. Last year, Manitoba furnished 50,000,000 bushels of No. 1 hard wheat from 2,000,000 acres of land. There are 200,000,000 more, and just as good, that have not been ploughed. I need not speak of our minerals, iron, coal, petroleum, gold and silver. If there is an authority here to speak of our Canadian resources, it is that young and energetic American born citizen, Mr. Clergue, who, on the other side of the river, is revolutionizing our industries.

Sir, I believe that this is an occasion when one can advocate better trade relations between the two countries, arrangements on a fairer and more equitable basis which would ultimately be advantageous. A little after England had abrogated the corn laws, a reciprocity treaty known as the Elgin treaty, was negotiated between the two countries. It went into effect in 1854, and remained in operation till 1866. Under that treaty, the trade between the two countries quadrupled in twelve years. That treaty

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was abrogated because it was said Canada had sympathized with the south during the civil war, when as a matter of history 40,000 Canadians had served in the Union army. Vain efforts have since been made to renew a treaty and our trade has found new channels. Notwithstanding your high tariff wall, Canada has attained quite a prominent position as regards trade, among the nations. Last year our aggregate trade amounted to: Exports, \$213,521,000; imports, \$259,211,800; total, \$472,732,800, and there are signs to show that we have not yet reached the high water mark.

But sir, without suggesting in the least any particular trade policy, one must not forget that you are our next neighbor, that we are one of your best customers and that the interchange of commerce between Canada and the United States should and must be put on such a basis as only befits two friendly nations.

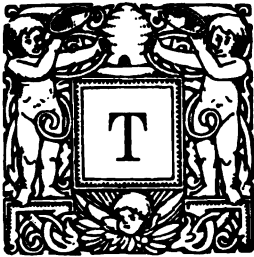
In conclusion, let me say that if we have an unbounded faith in our Dominion, we also look with pride to the mighty achievements of the land of Washington, Jefferson, Lincoln and Roosevelt. We can not ignore your extraordinary ascendancy among the nations of the world and I am only echoing the sentiments of six million Canadians in repeating the words of Longfellow, when in his beautiful poem "The Building of the Ship," comparing his native land to a vessel tossed upon the waves, he concludes with this most pathetic invocation:

"Thou, too, sail on, O Ship of State!
Sail on, O Union, strong and great!
Humanity with all its fears,
With all the hopes of future years,
Is hanging breathless on thy fate!
We knew what Master laid thy keel,
What workmen wrought thy ribs of steel,
Who made each mast, and sail, and rope,
What anvils rang, what hammers beat,
In what a forge and what a heat
Were shaped the anchors of thy hope!
Fear not each sudden sound and shock,
'Tis of the wave and not the rock;
'Tis but the flapping of the sail,
And not a rent made by the gale!
In spite of rock and tempest's roar,
In spite of false lights on the shore
Sail on, nor fear to breast the sea!
Our hearts, our hopes, our prayers, our tears,
Our faith triumphant o'er our fears,
Are all with thee, are all with thee!"

The Improvement of Lake Channels

BY HON. THEODORE E. BURTON

CHAIRMAN OF THE COMMITTEE ON RIVERS AND HARBORS, HOUSE
OF REPRESENTATIVES



THE people of the United States have reason to be proud of this canal. It is befitting that here upon the banks of this waterway, after the lapse of fifty years, the citizens of Michigan should join with those of Canada and of other states of the Union, in celebrating this anniversary. In the whole range of commercial history, no public work undertaken by city, state or nation has accomplished such remarkable results or conferred benefits so large in proportion to the cost. In forecasting its future the judgments of reliable observers have proven absolutely inadequate. The dreamer and the visionary have come nearest to the facts. It is difficult to tell which is the more impressive, the growth of its traffic or the magnitude of the industrial and commercial development which has followed it? In 1856 the first entire year in which boats could pass between Lake Superior and Lake Huron, 33,817 tons of freight passed through. This amount has been increased a thousand fold. Instead of tiny side-wheel steamers and sailing boats, having an average capacity of less than a hundred tons, we now behold the finest carriers on any inland sea, some of them carrying nearly twelve thousand tons. Steamboats have supplanted sailboats, larger boats are constantly being substituted for smaller. Iron construction displaced wood and now steel is taking the place of iron. Instead of the primitive facilities, with which it required several days to unload three hundred tons of iron ore, now in four hours and ten minutes, nearly twelve thousand tons has been unloaded. Instead of a partial supply for a few scattering furnaces, the major part of the iron ore smelted in the United States passes through this river and with it a quantity of wheat equal to the whole average annual export in recent years.

The quick succeeding changes can more fitly be described as revolutions than as the ordinary course of progress. The magnitude of this waterway with its thirty-six million tons of freight in the maximum year

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of 1902 may be comprehended by a comparison of its traffic with that of other canals and waterways and with some of the leading ports. In making comparison we can select as the most correct criterion, the number of tons carried through. It may be conceded that the freight which passes here



HON. THEODORE E. BURTON, CHAIRMAN OF THE COMMITTEE ON RIVERS AND HARBORS,
HOUSE OF REPRESENTATIVES.

has an average less valuable than that of the canals mentioned, but for the development of any country or the utilization of its resources, the cheap transportation of raw materials and of articles of smaller value is the most important object to be obtained.

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We can also properly include the lock on the Canadian side, because if it should fail, the boats which utilize it would come here, and if one of these should be out of commission its traffic would go there. In brief, all three locks are parts of the same general improvement. Its greatest, its only competitor is the Suez canal which revolutionized the routes of commerce in the old world. Exact comparison is impossible, because statistics relating to the Suez canal give capacity of cargo or net tonnage rather than the amount of freight carried. Yet we are justified in saying that the capacity or net tonnage of boats passing here is almost precisely twice as great as that of those passing through the Suez, and the cargo carried is between two and three times as great. Further, in the Suez canal tolls are levied amounting in the last year to twenty-three millions of dollars, while here any boat of any nation may pass on equal terms without discrimination or hindrance. If we consider the Kiel canal between the North Sea and the Baltic, which was opened in 1895 as if it were an event of world wide importance, the total traffic there is less than one-seventh of that passing here. In comparison with the Manchester ship canal constructed at more than six times as great a cost as that of these improvements on the American side, the tonnage carried through here is more than ten times as great.

Equally impressive is a comparison of the tonnage of this river with that of certain ocean ports. The average annual cargoes passing through Saint Mary's river are fast approaching the total amount of those received at or shipped from all of the ports of the United States in our trade with foreign countries. The tonnage carried is greater than that of all the sea-going commerce, both domestic and foreign of the empire of Germany, or of France, greater than the combined sea-going commerce of Russia, Austria and Italy. If we adopt as our basis of comparison, ton miles, that is, multiply the amount of freight by the number of miles carried, averaging here 843.5 miles, the Saint Mary's river and the Detroit river stand in a class by themselves and upon each there is a greater traffic than that of all the other rivers and canals of the United States.

Our railway system is the most elaborate in the world, exceeding in mileage that of all other countries and comprising over two hundred thousand miles constructed and equipped at a cost of thirteen and one-half billions of dollars, yet on the same basis of ton miles the traffic here is one seventh as great as upon all the railways of the United States. In this same connection it will be instructive to compare the cost with that of railway freight charges. The average charge per ton per mile on freight carried here is but a trifle in excess of one-tenth as much as upon railways. The freight charge on railways per ton per mile being .78 of a cent, while that upon the lake channels of which this river is a part, is but .81 of a mill. Comparison can be challenged with equal confidence in commercial and

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industrial development. This waterway is the most essential link in a waterway one thousand miles in length affording cheap transportation for the grain of a greater interior region and giving an impetus and an increased reward for agricultural production nowhere surpassed. It is probable that in the future, the development of this great producing region will be much greater than in the past. The supremacy of the United States in the manufacture of iron and steel acquired within the last decade, would be impossible without this canal. The bringing together of the ores of Minnesota and Wisconsin and the coal of Pennsylvania, Ohio and West Virginia gives an assured advantage in the manufacture of these staple articles which more and more are becoming the world's structural material and will enable the United States to permanently distance all rivals. It is to be noted that this improvement has enjoyed its greatest increase during the last twenty years and especially in the last decade. Those who study the development of American commerce will always give full credit to the state of Michigan for having initiated this great enterprise in the face of opposition and even of ridicule. The people of the State in the construction of the first lock opened fifty years ago did the best they could with the limited resources at their disposal and with the imperfect foresight of that time; but the great development of commerce in this region though from the first increasing rapidly in percentage was postponed thirty years. It was not until 1885 that these improvements became a colossal factor in the industrial growth of the country. From 1869, the year of the opening of the Suez canal, until 1885, the increase in the traffic of the Suez was greater than here. The freight carried there was greater until several years after 1885. At about this time events gave to this canal its more recent importance. Among them was the completion of the Weitzel lock in 1881, the deepening of other channels of the great lakes, the discovery of the iron ore fields of Minnesota. It should also be considered that after any great improvements there is almost always a period of inertia during which its full benefits are neither realized nor utilized. The most remarkable development of recent years has been in the shipments of iron ore, the total quantity of this commodity carried down was but 1,235,000 tons in 1885. In 1895 the quantity had reached eight millions, in 1900, sixteen millions, in 1902, the banner year, twenty-four millions. It is not a daring estimate to foretell that within ten years the annual quantity will be between forty and forty-five millions of tons. Shipments of lumber will no doubt decrease. Copper and miscellaneous freight may not show any marked increase, but there is an unlimited field for development in shipments of iron ore and in a less degree of coal and of grain.

In the midst of our congratulations it is well to consider some of the dangers which confront us. Conditions are not altogether ideal. This is an age of remorseless competition in which the cheapest and most con-

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venient instruments are sought and those which are obsolete or less efficient must go to the wall. It is a characteristic feature of the traffic that east-bound freight is much greater than west-bound. If this inequality could be removed, rates of carriage on the lakes could be very considerably reduced. While it is desirable that traffic in each direction should become more nearly equal, the present tendency is rather toward increased disparity.

What will become of the smaller ships? It is inevitable that for the great bulk of the trade, the larger, even the largest size, will be employed, and there is danger that the great fleet of small vessels will become less and less valuable year by year. In the trade upon the lakes the long haul is the most profitable, and traffic between nearby points is comparatively insignificant. This is not only a tendency here but everywhere. Population is increasing. Wealth is increasing much more rapidly. But transportation is increasing much more than either. Not merely are the bulk and weight of commodities carried on the increase, but also the distances which the commodities are carried.

The merchant now seeks the very best and most useful article even if it must come from the uttermost parts of the earth. Conditions here are governed not merely by the superior advantages of railways for short distances, but the great bulk of the traffic is made up of a few articles which must be carried for long distances. Could these smaller ships be used for the shorter distances, a great deal of floating property which according to present indications, must depreciate in value could serve a most useful purpose in developing the states bordering on the great lakes. It is not the deepening of channels alone or the construction of these locks which caused the development of this region, to these must be added the terminals at the various ports, the machinery for loading and unloading, which far surpasses any similar equipment in the world. When other ports and other localities in the old world and the new provide similar improvements and thereby diminish the advantages of the localities served by the traffic it is to be hoped that the ingenuity, the push and the foresight of the men of the great lakes may enable them to provide still further improvements, so that as now, they may continue in the forefront. I am not one of those pessimists who believe that the iron ore supply in the country adjacent to Lake Superior will be exhausted in a few decades. I cannot avoid the conviction that the hills and valleys near to the lakes have been barely scratched as yet; that other mines await the prospector, further afield perhaps, but nevertheless abundant in supply for generations yet to come, so that as the world more and more demands the products of iron and steel, the purchaser must look more and more to the regions tributary to this canal and the waterways of the great lakes. No such development as has been attained here could be accomplished by natural advantages alone. It

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is not fertile fields nor rich mines, nor deep channels which make a country great, either from an industrial or from a political standpoint. There must be strong and stalwart men of the progressive type ready to grasp the opportunities of each year and always alert to keep in the lead. Men as well as resources make a state rich and prosperous and in that which has been gained, credit must be given to the energetic men who have planned and managed these great enterprises—to the thousands of miners, to the sailors on the ships and to all who have toiled to accomplish what we see today. In our complex and progressive civilization, all of those who go to make up our varied population bear their share and are necessary to secure the best results.

I cannot omit to express my congratulations to the old men here today who were the pioneers in this great development; to Peter White the explorer and discoverer of untold possibilities in the trackless waste of the Upper Peninsula; to Mr. Harvey, the builder of the first canal; fortunately they are with us, after more than fifty years, to see the realization of their labors and sacrifices. The years have rolled swiftly by, but events fraught with consequences of overshadowing importance have intervened in even more rapid succession. We may add our tribute of honor to the many who with like energy and hope bore the heat and burden of the day, but who have been taken from us. Foremost among them stands General Poe, the engineer of the latest lock, without whose comprehensive foresight of the future demands of lake traffic this great procession of passing ships would hardly have been possible. This magnificent lock is his fittest monument.

Where are the young men who will take the place of those whose work we celebrate? No conquering army listening to the inspiring notes of martial music and gazing upon fluttering standards behind which they must conquer or die, were ever more alive or ready to respond to the cry of 'Onward March' than are the young men of today. They are ready for all emergencies; to them it may be said with more impressiveness than ever, 'To be living is sublime.' Will their merits and the benefits of their achievements compare with those of the men who are gone or who are nearing the twilight hour?

This occasion is in a peculiar sense a celebration of international enterprise. The connecting waters of the great lakes lie between the United States and the Dominion of Canada, countries peopled by those of the same race, who speak the same language and who in an exceptional sense look forward to the same destiny.

The mariner does not stop to consider whether the course of his boat lies through channels of Canada or of the United States, the boundary between us is a mere line upon the map. Our interests, our hopes and our achievements more and more, year by year, are one, and it is appropriate

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that we should today, on both sides of the boundary line, repeat the sentiment expressed in the last speech of President McKinley. 'Let us ever remember that our interest is in concord, not conflict; and that our real eminence rests in the victories of peace, not those of war.'

The progress of civilization, the enjoyments of the comforts and conveniences of life, the highest standard of manhood will be best promoted by a growing sentiment for peace and good will among the peoples of the earth. Here on this border line between the United States and Canada may we erect twin pillars which will be the beginnings of the splendid temple of peace. We may thus attain what one of our great legislative leaders has termed a development of resources great beyond the comprehension of any mortal and the diffusion among all of riches to which the glories of the Arabian Nights are but the glitter of the pawn shop.

And yet more important we shall have part in that development of individual opportunity, of liberty and of high moral standards, which now and always will place the English speaking races in the forefront of the world's civilization.



CAR FERRIES DESIGNED BY FRANK E. KIRBY KEEP THE STRAITS OF MACKINAW
OPEN FOR WINTER TRAFFIC.

The Commerce of the Great Lakes

BY HON. WILLIAM LIVINGSTONE

PRESIDENT OF THE LAKE CARRIERS ASSOCIATION



IN 1843 Senator Norvell introduced a bill in the United States Senate to grant lands for the building of the St. Mary's Canal. Henry Clay, the silver-tongued orator of Kentucky, one of the foremost statesmen of the nation, bitterly opposed the bill, declared that any money or grants made for that purpose, would be utterly wasted, and pronounced this great waterway beyond the farthest bounds of civilization, if not in the moon. In an address delivered by Henry Clay to Lafayette in Washington, December 10, 1824, on the occasion of Lafayette's last visit to America, he used the following language: "The vain wish has been sometimes indulged that Providence would allow the patriot after death to return to his country to contemplate the intermediate changes which had taken place; to view the forests felled, the cities built, the mountains leveled, the canals cut, the highways constructed, the progress of the arts, the advancement of learning, and the increase of population." Could he stand here today and witness this celebration, view this beautiful city, with its many industries, happy homes, progressive people, —the city but yet in its infancy, and destined to be beyond a doubt, with its great natural advantages, one of the great cities of this nation, and when comparing the present with his prediction of sixty-two years ago, who could paint the emotions which would surge through his brain?

A short review of lake navigation, the subject on which I am to speak, reveals a transformation scene even greater. While statistics are necessarily dry, it is an absolute necessity to use a few of them in showing and demonstrating the tremendous increase in the tonnage of the Great Lakes during the past fifty years. In 1855, fifty years ago, the total tonnage of Lake Superior, not only the cargo, but the ships that carried it as well, could be comfortably stowed away in the hold of any of the largest modern steamers that have come into commission during the past year, and that are daily passing through the canal. The movement of freight to and from

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Lake Superior previous to the opening of the State canal in 1855, was entirely by boat to Sault Ste. Marie, where the cargoes were unloaded, then taken across the portage one mile in length, and reloaded aboard the boats.

In 1851 about 12,600 tons passed over the tramway portage; transshipments to Lake Superior ports consisted of hay, oats, dry goods, groceries, and mining machinery to the value of a million dollars. Those



HON. WILLIAM LIVINGSTONE,
PRESIDENT OF THE LAKE CARRIERS' ASSOCIATION.

to lower lake ports included copper, iron blooms, and fish, valued at \$675,000. During the fifty years the canal has been in commission, the yearly traffic has increased from the minimum of 14,503 tons to a maximum of almost 36,000,000 tons. The increase in tonnage of each year's traffic over that of the preceding year, has averaged about 20 per cent. For each

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decade the average percentage of yearly increase and total tonnage are as follows:

1855-1864, 40 per cent.....	1,203,358 tons
1865-1874, 12 per cent.....	4,829,247 tons
1875-1884, 17 per cent.....	14,868,639 tons
1885-1894, 17 per cent.....	80,343,218 tons
1895-1904, 12 per cent.....	253,202,697 tons

Total.....	354,447,159 tons
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Colonel Davis in a report just issued states that the commerce of the lakes for 1904 was 24 times greater than that of 1880, three and one-half times that of 1890; that the value of tonnage for 1904 was nearly \$355,000,000. Astounding as the fact may seem, the new tonnage that has come into commission this present year, 1905, and that being built and under contract for 1906, will increase the carrying capacity of the lakes 7,220,000 tons. This increase alone is equal the entire amount of ore carried during the year 1896. In other words, the ships that have come into commission this year with those under contract in the Great Lakes shipyards, for 1906, could themselves carry the total ore commerce of Lake Superior of ten years ago. More than one-third of the general movement of ore has been the work of the past five years; more than three-fourths of total movement has been the work of the past ten years. In fact, so rapidly has the tonnage increased during the past five years, that the dream of today is the reality of tomorrow, and with the experience of the past, who shall say what the maximum will be? The building of the steamer A. B. Wolvin, the first of the present mammoth carriers, increased the tonnage carrying capacity 3,000 tons over any preceding vessel. Already it is being predicted that with a 25-foot channel, which has been recommended by Colonel Charles E. L. B. Davis, as both feasible and practicable, that 15,000-ton ships will be built. And great as the present output of ore has attained, one of the best posted iron men in the United States, made the statement in Cleveland within a short time, that inside of ten years, the output of ore from Lake Superior would reach 45,000,000 tons in a single season.

The tonnage of the Detroit river is equal to five times the foreign tonnage of New York harbor, and greater than the combined tonnage of Liverpool, London and Hamburg, and with tonnage to spare. And it must also be borne in mind in connection with this that our season of navigation on the Great Lakes is 230 days, whereas on the seaboard they have the entire 365 days. In no other place in the world can so animated a water view be obtained as the Detroit river. It is a constant procession, ships never out of sight.

It may be of interest to state that one of the new ships launched a few

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weeks ago, the steamer *Elbert H. Gary*, recently carried 10,877 tons of ore from Ashland, being the largest cargo ever shipped from Lake Superior. In fact, four new ships built by the Pittsburgh Steamship Co., and recently gone into commission, if carrying wheat, the aggregate of the four single cargoes if reduced to flour, would be sufficient to furnish every man, woman and child of the 80,000,000 population of the United States, a one-pound loaf of bread. Showing the inconsiderable amount of wheat as compared



NAVAL PARADE: THE REVENUE CUTTER MORRILL, WITH GOVERNOR WARNER AND STAFF AND MEMBERS OF THE MICHIGAN LEGISLATURE.

to ore, our banner crop of wheat was in 1901, over seven hundred million bushels, of which three hundred and fifty millions were carried by lake transportation. Yet, if a canal were dug from Cleveland to Buffalo (185 miles) forty feet wide by twenty-five feet in depth, the entire length, the 350,000,000 bushels would fill it.

The progress in the loading and unloading facilities of our vessels has increased in equal proportion. In the inception of the ore trade it was put aboard little schooners by hand labor of severest sort, and at a cost per ton that today would be fabulous. It took about four days to load a cargo of 300 tons, and the unloading of the cargo was an even greater undertaking.

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To get a cargo out of the hold staging had to be built. The ore was shoveled upon this staging, then from the staging to the deck, and then from the deck to the dock, making three handlings in all. By this process it took nearly a week to unload 300 tons, and the next move was by means of block, tackle and a horse. Only a few days ago the steamer G. W. Perkins unloaded 10,514 gross tons of ore in four hours and ten minutes, with only 32 men, the bulk of this being unloaded by clam shells. This is over fifty tons per minute and 1,800 pounds per second, and is equal to 260 cars of 40 tons capacity, making six trains of forty cars each. Ten years ago this would have been shoveled into buckets, taking a number of days and there is not a dock on the coast today could unload this cargo in a week.

Frequent attacks are made on bills asking for appropriations for improving our waterways, and yet it is an indisputable fact that no expenditure made by the government has ever been made that has yielded such dividends as the money invested to improve the channels of the Great Lakes. They are the lines of least resistance, but in a state of nature they are not always available. Their economic possibilities are inestimable when not obstructed by bars or tows. By the improvement of the channels connecting the Great Lakes to a depth of 20 feet, not only has the cost of the transportation been greatly reduced, but the enormous stimulus given to every manufacturer has added largely to the population and wealth of the cities encircling these waterways. The rate on a bushel of wheat from Chicago to New York in 1866, by the lakes and Erie canal, when the Sault canal draft was limited to 12 feet, was twenty-nine and sixty-two hundredths cents; whereas the rate on a 20-foot draft in 1904 was only four and seventy-one hundredths cents, or only about one-sixth, thus effecting a saving of eighty-four per cent. The rail charges between the same terminals for 1866 were thirty-two and seventy-nine hundredths cents, and in 1904, eleven-hundredths cents, showing a reduction of about two-thirds in the charges by rail. From this increase it appears that while the charges by rail and water had both been greatly reduced, in 1866 the water charge was ninety per cent of that by rail, while in 1904, it was only forty-two per cent.

In 1892 Senator William P. Frye, in presenting his committee report, stated that for the year 1890 the total expenditure for water improvements on the Great Lakes had amounted to about thirty millions of dollars, or approximately one-fifth of the annual saving affected in transportation. That our waterways have acted as most powerful regulators of rates. When it is considered that a diminution of one mill per ton on the railroads of the country affects a saving of nearly a hundred millions to the shippers of transportation, the value of this restrictive power cannot be over-estimated. And as Prof. Louis M. Haupt stated in a paper recently at a meeting of the American Philosophical Society held in Philadelphia, that had the distin

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guished Senator added as a recognized fact that such regulation by water does not reduce but greatly increases the revenues of the railroads, he would but have emphasized the commercial paradox which comparatively few persons appear to recognize.

Major Potter in his latest annual report, states that the saving of freight alone from Lake Superior in 1904, is within five millions of all the sums of money ever expended on the whole system by the general government. This is demonstrated by the fact that on the Great Lakes we



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have the lowest transportation on the globe. During the past five years the cost of moving a ton of freight one mile on the lakes has been ninety-six one hundredths of a mill. In last year, 1904, it was eighty-one one hundredths of a mill, whereas the cost of three and one-half mills per ton per mile is the lowest as far as known reached on any railway. In fact, we carry a ton of coal from Buffalo to Duluth, almost a thousand miles, for what it costs to hire a laborer to put a ton of coal in your cellar, after being delivered at the curbstone of your house.

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Colonel Davis in his annual report just issued recommends about eight and one-half millions for improvements on our waterways, nearly eight millions of which is to be expended at Sault Ste. Marie and on the Sault Ste. Marie river. It includes \$3,390,000 for a new canal, \$3,000,000 for the West Nebish, improvements that are very important and necessary. We have already largely outgrown the present improvements and increased facilities are of the utmost importance. As an illustration, the Canadian canal of comparatively recent date, ten years, is 900 feet in length and 60 feet in width. At the time of construction, it was planned and intended to be large enough to meet all future increase in tonnage. Already a vessel is under construction, and will soon be launched, that is 60 feet beam, and will therefore be unable to pass through the Canadian canal, and doubtless others will soon be built of equal or greater width. The Poe lock is 800 feet long, 100 feet wide, and when planned, was intended for four vessels to be locked through at one time. Today, only one of our latest steamers can be locked through, some of them being 569 feet keel, and 55 feet beam, showing that big as these locks were considered, commerce has already overtaken them.

As a chain is only as strong as the weakest link in it, in addition to what has been recommended, the most important and most urgently needed improvement on our Great Lake waterways is a new channel at Lime Kiln Crossing. Owing to the large and constantly increasing tonnage on the lakes, and the rapidly growing congestion which already exists on the Lime Kiln Crossing, it is imperative and of the utmost importance that all the effort possible should be brought to bear to secure at the earliest possible moment the passage of a bill for an appropriation for the construction of another Crossing at the Lime Kilns. The tonnage has increased so enormously in the last decade, and the present decade is increasing at a much more rapid rate, that 90 per cent of the risk of navigation now is in collision. Our modern ships are all of such lines and of such construction that the dangers of shipwreck or stress of weather has been reduced to a minimum. The result is that our greatest danger in navigating the Great Lakes, is from collision in the narrow channels, and should one of our large modern ships be sunk in the Lime Kiln Crossing, blocking the channel, it would tie up the entire tonnage of the lakes until she was removed, and the loss entailed thereby would be difficult to estimate.

Great as the necessity was for the building of the new canal now under construction at the St. Clair Flats, there is still greater necessity of this Crossing at the lower end of Detroit river. The risk under present conditions is exceedingly great and constantly becoming more so. The loss entailed by the sinking of the little steamer *John N. Glidden* in the Flats canal, and which only partially obstructed it, but entailed great loss to carriers and shippers, is too recent an object lesson to be forgotten.

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The sinking of the steamer *W. L. Brown* at the Lime Kiln Crossing, which only blocked the channel partially, is a recent example of the great loss which may occur at any time, in a single channel. The steamer *Douglass Houghton* in 1900 before the present improvements were completed in the Sault Ste. Marie river, blocked the entire navigation of Lake Superior for a whole week, and entailed an immense loss at that time to vesselowners and shippers. The Lime Kilns in its present congested shape is a constant menace to navigation, and by all odds the weakest link in the chain at the present time. And every possible effort should be made to secure the passage of a bill for the building of a new channel, as even with the greatest success which we could hope to attain in the passage of a bill, long before a second channel can be completed, the present channel will be so congested and unable to accommodate the rapidly growing tonnage, as to entail innumerable detentions, and become an absolute menace and danger to navigation.

I repeat that in this great commerce the dream of today is the reality of tomorrow. Who can say that he among us would be bold enough to predict what the centennial of the canal shall see would not undershoot the mark as widely as did Henry Clay sixty-two years ago? There are potentialities in this lake trade that are measureless and today we may be standing on the site of a future city metropolitan in population and imperial in industry. It is already the gateway of a national empire.

Let me give you a few figures, and only a few to show how the production of pig iron increased in the United States after this canal came into being. For instance, in 1855 the total of pig iron in the United States was 700,159 gross tons. In 1864 it increased to 1,014,282; 1872, 2,548,963; 1879, 2,741,583 tons; 1880, 3,835,191 tons; 1886, 5,583,329 tons; 1899, 7,603,642 tons; 1893, 11,773,934 tons; 1901, 15,878,354 tons; 1902, 17,821,307 tons; 1903, 18,009,262 tons.

It is estimated, based upon the returns to this date that the total production of pig iron in the United States for 1905 will exceed 22,000,000 gross tons. The total of pig iron in Great Britain in 1904 was 8,562,658 gross tons. It is an interesting commentary to be able to state as a fact that one single company in the United States, viz., the United States Steel Corporation, produced in the year 1904 a greater steel tonnage than was made in the whole of Great Britain.

The total amount of steel produced by the United States Steel Corporation last year was 9,167,960 tons out of a total in the United States of 14,422,101 tons. Great Britain's total production was in 1904, 5,134,101 tons of steel, a little over one-half as much as the United States Steel Corporation product and a little over one-third as much as the whole United States product.

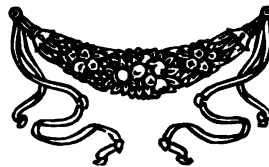
That shows the great advantage that this country has in the manu-

THE SAINT MARY'S CANAL

facture of iron and steel since the entire steel-making capacity of the United States Steel Corporation is exclusively from Lake Superior ores. Last year the United States produced more pig iron than Great Britain and Germany combined. There are plenty more very interesting figures for us to contemplate, but I fear I will tire you and so forbear. The increased mileage in railroads in the United States since 1855 is astonishing and worthy of comment, but time forbids.

But I cannot close without pointing out the fact that the freedom of the canal is almost greater in its influence than the canal. This great water way is free to the British flag as to our own, as are all the canals of the United States government. The Canadians themselves have been as generous in allowing us the free use of their canal on the other shore at all times and under all circumstances as we could possibly desire them to be. They have set us an example of liberality of good will that we must always profit by and be as generous in return. This, then, as we hinted, is Lake Superior's declaration of independence.

This vast land-locked sea with all its tributaries is free, and its freedom means these infinite results. And we who have seen its development and have worked the forests and mines which have chiefly made its commerce, may pause in wonder that so few and so feeble a people living under so cold a sky should have been permitted to share so largely in changing the seat of empire, and enlarging the happiness of the world.



The Future of American Commerce

BY HON. JULIUS C. BURROWS

UNITED STATES SENATOR FROM MICHIGAN



NE would need to be possessed of the spirit of prophecy in a remarkable degree to speak with any degree of accuracy as to the future of American commerce. If *domestic* commerce alone is intended to be embraced in this phrase, we could speak of its future with reasonable assurance, for the future of our domestic trade is reasonably assured. With free and unrestricted intercourse between States, our marvelous industrial development, the inexhaustible supply of raw material and the enterprise and energy of our people, with wholesome laws promotive of commercial development, it is not difficult to divine the future of our domestic trade. Its marvelous past proclaims the certainty of the future. It is an astounding fact that our domestic commerce on land and sea aggregates twenty-two billions of dollars annually and exceeds in magnitude the foreign commerce of all the nations of the earth. It is not difficult, therefore, to divine, that with the increasing and steady development of our resources and the improvement of our rivers and harbors under the patriotic administration of the distinguished gentleman from Ohio, Mr. Burton, the magnitude of our domestic commerce is only limited by the extent of our resources and the energy of our people. So far, therefore, as the future of our domestic commerce is concerned, it is not open to speculation or doubt.

The future of our foreign trade is more problematical and its development is a matter of keenest solicitude. This is pre-eminently a business age, and the nations of the earth, as never before, are struggling for the mastery of foreign trade. With the absorbent capacity of our domestic market taking ninety-two per cent of our manufactures, yet we produce more than we can consume, and a foreign market must be found somewhere outside of ourselves for the surplus products of our shops. With six hundred thousand manufacturing establishments employing seven million of workmen, and with an aggregate annual output of fifteen billions of dollars, we have

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become the greatest manufacturing nation on the face of the globe, and after supplying the needs of our people, we have a surplus of one billion two hundred million of manufactured goods which must be disposed of somewhere in the world's market. I expect the future will bring to us a greater measure of the world's trade, which takes today four billion dollars worth of manufactured goods and the United States furnishes only five hundred million or twelve and one-half per cent. I look to see our share in the world's markets greatly augmented. I expect the future will give us a



JULIUS C. BURROWS, UNITED STATES SENATOR FROM MICHIGAN.

larger market in Asia, South America and Africa. I expect the future will give us a larger trade with the people of South America, standing at our very door, who last year took three hundred and eighty millions of dollars worth of foreign products, only thirty-five millions of which came from the United States. While she purchased from England one hundred and twenty millions; of Germany, fifty-four millions; France, thirty-five millions; Spain, eight millions, and even of distant Italy, thirty-four millions; and the

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United States furnishing but thirteen per cent of this foreign consumption. Asia and Oceania took seven hundred million dollars' worth of manufactured goods, of which the United States furnished but sixty-five million, while Africa with her three hundred millions of imported manufactures, took from the United States only thirteen millions. In the matter of cotton goods it is astounding to know that South America as a whole took sixty-three million dollars' worth of cotton fabrics and only three and one-



NAVAL PARADE: MICHIGAN NAVAL RESERVE STEAMSHIP YANTIC,
COMMANDER FREDERICK D. STANDISH.

half millions or ten per cent from the United States, although the United States is the greatest producer of cotton of any nation on the globe.

While our trade with these countries is so restricted, and we furnish such a small part of their imported manufactures, yet the prospects of enlarged commerce with these nations was never more flattering than to-day. More than that, our outlying possessions furnish a fresh field for commercial exploit. Six years ago our exports to Porto Rico were only two millions of dollars, while last year they were twelve millions. Our

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exports to Hawaii have grown from four millions in 1897 to eleven millions in 1903, and our exports to the Philippines from ninety-four thousand dollars in 1897 to four millions in 1903.

There is another hopeful sign for the future of this country in the matter of our foreign trade, and that is the aroused public sentiment and interest in favor of building up our merchant marine. It is a reproach to this nation that while our entire foreign commerce in 1903 aggregated in value two billion four hundred millions of dollars, only two hundred and fourteen millions or nine per cent was carried in American ships. We paid for freighting American commerce, exports and imports, last year one hundred and forty millions of dollars and of this sum only twelve millions was paid to American ship owners. The thirty millions of dollars paid for passenger traffic across the seas went chiefly into the pockets of foreigners. It is a humiliating fact that the flag of our trade is seldom seen in foreign ports.

The Hon. John Barrett, formerly minister to Siam, testified before the shipping commission recently, that in the last ten years, he made three trips around the world and had therefore ample opportunity to judge of the condition of our foreign merchant marine. During this period he was also minister representing the United States at the Argentine Republic and in Siam. The foreign trade of the Argentine Republic last year was three hundred and sixty millions of dollars of which the United States received only twenty-four millions, and he states that there are seven great ship lines to European countries besides large freighters, carrying this immense commerce, while not a single American line enters the Port of Buenos Ayres. In his last journey around the world, he says, passing from San Francisco to Japan, China, India, the Mediterranean and Europe, he did not see in the course of his journey a single merchantman flying the American flag. While minister at Siam for a period of four years, he declares that not one American merchantman entered the Port of Bangkok. Today a half dozen great lines of fast steamers are plying between Europe and Eastern Asia and only one line between our western coast and the Orient. The trade of Europe with Asia today is six or seven times greater than it is with the United States. This is ascribable in my judgment to the want of shipping communications with these countries.

Recently we had a protracted controversy whether the flag follows the constitution or the constitution follows the flag, but there is one thing about which there is no contention and that is *trade* always follows the flag. I have great confidence, therefore, in the future of American commerce. As I said before our domestic commerce is secure. Our foreign trade will certainly be augmented.

At the last session of Congress, a commission of ten persons was appointed charged with the duty of making inquiry into the instrumentality

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to be employed in building up our merchant marine. The creation of the Department of Commerce, charged especially with the promotion of our trade and the appropriation of \$30,000 to employ agents to visit the South American countries and ascertain their interests are all hopeful signs of an enlarged foreign trade.

Public sentiment is thoroughly aroused upon this subject. I do not propose to discuss the methods by which the merchant marine may be rehabilitated, but that it will be accomplished, I have not the slightest



NAVAL PARADE: LIGHTHOUSE SERVICE STEAMER MARIGOLD, COMMANDER
CHARLES B. FOX, U. S. N.

doubt. The importance of this matter is already recognized. McKinley said upon this subject, "Foreign ships should carry the least and not the greatest part of the American trade. The remarkable growth of our steel industry; the progress of shipbuilding for the domestic trade and our steadily maintained expenditures for the navy have created an opportunity to place the United States in the first rank of commercial maritime powers."

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President Roosevelt recently declared: "Shipping lines for our commerce to the principal countries with which we have dealings would be a political as well as commercial benefit. From every standpoint it is unwise for the United States to rely upon the ships of competing nations for the distribution of our goods. It should be advantageous to carry American goods in American built ships."

The trade of the future lies across the Pacific. The prows of the merchantmen of all nations are turned toward the Orient. The waters of the Pacific cover one-third of the surface of the globe, and one-half the population of the earth find their natural outlet over its majestic expanse.

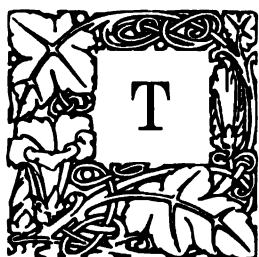
Our occupancy of the Philippines at the very threshold of the open door to Asiatic trade places the United States in the advance. With the restoration of our merchant marine, the continued improvement of our rivers and harbors, the completion of the Isthmian canal, the time is not far distant when the United States will resume its lawful place on the sea and unfurl its flag of commerce in every port of trade on the face of the globe.



Canada and the United States

BY HON. RAOUL DANDURAND

SPEAKER OF THE SENATE OF THE DOMINION OF CANADA



HIS commemoration allows the United States the opportunity of examining the distance traveled and the strides made by the nation as a whole and by its western states in particular. Nations, on this continent, have such a short record, comparatively, that they have not long to ponder as to what part of their existence has been most profitable and most successful. Can a nation boast of having attained its age of majority before it is one century old? The

United States have not yet completed their first half of their second century. They are just out of their teens.

One could easily see 50 years ago that the foundations had been laid for the making of a strong nation, but no one could then foresee that 50 years later this infant nation would enter the mundial political concert, claiming justly there in one of the predominant places. Whatever his imagination, whatever his enthusiasm for this land of supreme freedom and of the bountiful, no one could have predicted that in less than fifty years this country would be peopled to overflowing and would be invading with its products all the markets of the world.

In 1900 you were seventy-six millions. What tale will the next census tell? Still the Europeans keep pouring in yearly by hundreds of thousands. In their search for good arable lands, some of them even cross the imaginary line which divides us. They meet on our plains other Europeans, who came direct through our own doors, immigrants who have found out that Canada is not a distant land, far away towards the north pole, that our metropolis is but twelve hours' distant from yours, and, on their way to New York, that they can stop at our front door, 36 hours before their ship could bring them to the Hudson.

Canada is now beginning to fill up. We believe that we stand today where you stood 40 years ago. We feel that the wave of prosperity which has covered your lands is extending its area and is beating on our shores.

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We hope that during the next fifty years Canada will develop strongly and healthily. We will not forget that very often, in these regions, the United States, during the last century, have led the way in the development of western commerce. We know what you have done for the betterment of navigation on the lakes and how helpful you have been to our mariners.

You linked the upper lakes at this spot forty years before we followed suit. Our requirements were not then as pressing as yours. We are



HON. RAOUL DANDURAND, SPEAKER OF THE SENATE OF THE DOMINION OF CANADA.

sanguine of being able to show as large a tonnage as your present one before very many years go by, through the rapid development of our agricultural west, of our rich mines and of our industries. We hope to be able, before another half century is completed, to reciprocate in kind by offering you a direct outlet to the sea, through a twenty-foot waterway via the Ottawa and St. Lawrence rivers, thus saving you the annoyance of twice breaking bulk before reaching an European port. When Canada will have executed the necessary works on that water route, your steamers may take their cargoes at Duluth and bring them in a straight line to Liverpool. We must do that in the interest of half a continent lying west of the lakes which needs a

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short, a direct and easy water route to the Atlantic. We must do it to repay our American cousins for the numerous pioneer works they have in the past executed on the lakes to our great advantage.

The United States have reached their complete material development. Within a few decades Canada will be as fully equipped. When both sides of our great lakes are equally populated, when towns and cities dot our shores, when millions of men plow our northwestern prairies, what a sight will behold our grandchildren when they are gathered here to celebrate the centennial celebration of the joining of these two lakes! But material development cannot be the sole end of a nation. When this stage has been reached the nation must continue its march towards a higher civilization. To be one hundred millions is not synonymous to being glorious and envied. Nations past and present can show a larger population without commanding admiration. Smaller ones have shed considerable luster in the history of the world through their predominance in sciences and arts and their greater refinement. It is little to be materially great if one is not morally so.

One need not be a prophet to predict for Northern America a prodigious future. Will we not be 150 million people before the first half of this century is over?

It behooves the statesmen of the day to set before their people a high standard of public morals so as to lift them to a higher plane. I commend and applaud the manly and elevating utterances of your President, Theodore Roosevelt, whose lofty ideals make for the betterment of humanity.

There is to my mind one ideal which should be our one ideal, distinguishing specially North America from the rest of the world. Most of our fathers and ancestors have sought this land to free themselves from the various burdens that made them poor or miserable in their native country. The greatest curse from which they fled has been European militarism.

Europe can justly boast of a higher culture in arts and sciences, of a greater accumulation of art treasures, of a larger class of men of wealth and leisure devoting themselves exclusively to refined arts and intellectual pursuits. These advantages undoubtedly make towards a higher civilization, but real progress in true civilization must be judged by a different standard. Since the Divine Ruler appeared on this earth to preach peace and good will among men; since He has laid down in a single phrase the guiding rule which sums up the whole Christian doctrine—Do unto others as you would have others do unto you—it must be admitted that a greater sense of justice has governed the actions of men individually.

Men's conscience is no more oppressed and equality before the law is now universally proclaimed in the Christian world. More justice reigns among men. This is the only sure sign that humanity has attained greater civilization. Can this be said of nations in their relations between them? Decidedly not. Europe is still a military camp, where millions of men are



NAVAL PARADE: THE FLEET LEAVING THE CANADIAN LOCK, LED BY THE PHILADELPHIA WITH THE CANADIAN REPRESENTATIVES ON BOARD.

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in daily training to better kill and slaughter their fellow beings and neighbors. Taxes keep on increasing to maintain enormous armaments, till life has become a burden to a large proportion of the toilers who yearly flee to this country by hundreds of thousands. In Europe war is an element which must constantly be reckoned with. That contingency is in the trend of mind of every thinking individual.

In defence of such a system the argument is advanced that one must protect himself against the attacks of a strong enemy, but every one of those nations will occasionally, when an easy chance presents itself for aggrandisement, declare war upon the weaker and will crush him mercilessly.

In this twentieth century Europe, as in the fifteenth century, knows but one measure of justice governing the relations of nations—the law of might. European nations, as corporate beings, are still as barbarous as 500 years ago. One will find across the Atlantic men who will commend war as a splendid sport which develops manly qualities and the highest among them—self-sacrifice. It should be easy to cultivate such a virtue through less brutal and less sanguinary methods.

A Canadian writer was lately affirming that the cardinal doctrine of North American politics should be the maintenance of peace on this continent. Within the next 50 years, I repeat, we will be one hundred and fifty millions of people, under two flags, it is true, the honored Star Spangled Banner and the beloved Union Jack, under which we enjoy complete autonomy, but although separated as to allegiance, let us have but one aim, but one supreme ideal, the constant application of the golden rule in our national acts; let us teach Europe greater humanitarian principles.

A distinguished statesman from abroad was lately studying our body politic and analyzing our mentality. He expressed his very great surprise that the eventuality of war never entered our mind. He was, of course, from Europe. Blessed be the country which can be in that state of mind. All our efforts should tend towards remaining so. Let us preach arbitration, day in and day out, as the solution of all our difficulties. The United States lately went to war, but it was for the purpose of putting an end to war and to bring order, freedom and peace to a neighbor. This is truly and nobly American—North American I should say.

A colossal monument is about to be erected in the State of New York in honor of peace. I express the hope that it will be so placed as to be seen at the same time as the Statue of Liberty, so that those two monuments may proclaim at once to the world that this northern part of America guarantees forever to its inhabitants the two greatest blessings that can be given to mankind—peace and liberty.

Letters Relating to the Celebration



FROM a large number of letters of felicitation over the celebration and of regret that the writers were unable to be present the following are selected for publication—some of them because of the manifestation of interest on the part of high officials of the government; others because of their historical value. Mr. White made a journey to Oyster Bay in order to invite President Roosevelt to attend the celebration. Although public business prevented the President from going to Sault Ste. Marie, he insisted on having Mr. White's address read to him, and he made several suggestions which were incorporated in that document.

From the Secretary of the Treasury.

Washington, April 20, 1905.

Dear Mr. White: Your application for official co-operation in the matter of the celebration of the fiftieth anniversary of the opening of the Sault Ste. Marie Canal is before me.

This Department will do everything permissible by law to make the event a success. We can send you one and possibly two revenue cutters, with plenty of patriotism and powder, both at your service.

Very truly yours,

L. M. SHAW.

From the Secretary of War.

Washington, April 20, 1905.

My Dear Mr. White: I have received your application for official aid in the matter of the celebration of the fifty years' anniversary of the opening of the Sault Ste. Marie Canal. I fully appreciate the importance of the event which you desire now to celebrate in view of the enormous growth of the traffic which now finds an outlet through the canal, and I shall be very glad in every possible official and personal way to further your patriotic object of celebrating this important event in the history of the nation. Anything that I may lawfully do as Secretary of War you can count on my doing to make your celebration a success.

Very sincerely yours,

WM. H. TAFT.

LETTERS RELATING TO THE CELEBRATION

From the Secretary of the Navy.

Washington, April 20, 1905.

Mr. Peter White: You can rely on the Navy Department sending the *Michigan* up to your semi-centennial celebration of the birth of the Soo Canal and also on its doing everything it can consistently to make the event a success.

Very truly yours,

PAUL MORTON.

From the Secretary of Commerce and Labor.

Washington, July 20, 1905.

Hon. Peter White: Referring to your letter of June 24, 1905, in which you state that August 2d and 3d are the days that have been fixed for the celebration of the fiftieth anniversary of Sault Ste. Marie Falls Ship Canal, and requesting that the United States vessels be there on August 1st, this Department informs you that the Light-House Board will send such vessels as can be spared to be there on that day. It is expected that two or more Light-House vessels will be there to take part in the celebration.

Very truly yours,

J. H. METCALF.

From Richard P. Joy.

Detroit, Mich., March 26th, 1906.

Mr. Charles Moore: My brother, Mr. Henry B. Joy, suggests that I give you any information I may have in regard to Mr. James F. Joy's connection with the original Sault Ste. Marie ship canal, and I will also take pleasure in sending you the photograph of my father, as soon as I can have one printed.

The first step taken by the promoter and canal engineer, Mr. Charles T. Harvey, after inspecting the proposed canal site, was to "establish confidential relations with Mr. James F. Joy," to quote from Mr. Harvey's book on "Soo Canal Reminiscences." The next step was to induce Mr. John W. Brooks, then president of the Michigan Central Railroad; Mr. Fairbanks, of Vermont; Erastus Corning, of Albany, N. Y., afterwards president of the Canal Company, and others to pledge financial support providing the State of Michigan could and would give a sufficient land grant to the company.

Mr. James F. Joy acted as attorney and representative for the Canal Company, with offices in the old Hough Block (1852), which still stands at the northwest corner of Griswold and Congress streets, and in that building the necessary enabling act and other legal papers were drawn up.

It might be said that the original Sault Canal first saw the light of day in that building, as it was there that the financial plans were conceived, the campaign of operations laid out and capital interested.

THE SAINT MARY'S CANAL

Mr. Joy acted throughout the construction of the canal as the representative of the gentlemen who composed the Canal Company. All the reports from the engineers came to his office and were then given to the company directors. (These reports are now in my possession.)

I think I have heard my father say that the Canal Company was organized and received its charter under the New York laws, there being at that time no law under which they could incorporate in Michigan.

You will see from the foregoing, that Mr. James F. Joy played a most important part in organizing the original Canal Company, drafting its



JAMES F. JOY.

charter and the various enabling acts for the Legislature, etc., besides acting as the representative of the company in Michigan. At the completion of the canal, Mr. Joy shared to some extent in the pine and mineral land grant (part of which I understand included the Calumet and Hecla mine), and while it did not make the original holders rich, these lands did in after years make great fortunes.

It is perhaps only fair that Mr. James F. Joy be given credit for his efforts in any history of the canal, which is to be published.

RICHARD P. JOY.

LETTERS RELATING TO THE CELEBRATION

From Alfred Noble, C. E.

New York, July 12, 1905.

Mr. Charles Moore: I beg to acknowledge receipt of the invitation to be present at the ceremonies celebrating the fiftieth anniversary of the opening of the St. Mary's Falls Canal at Sault Ste. Marie, August 2nd and 3rd, and regret very much that it will be impracticable for me to attend.

On looking over the notes accompanying the invitation I regret to note no adequate mention of the very important part taken by Gen. Godfrey Weitzel in the development of the improvements at the St. Mary's Falls Canal, and it may be well to supply a few of the missing data here.

So far as I know, the first official report definitely submitting a plan for the improvement of the canal was made by Brig.-Gen. T. J. Cram, Corps of Engineers, U. S. A., in 1869 or 1870. Gen. Cram was then in charge of the river and harbor works of the district embracing the canal. Gen. Poe took charge of the district (I think succeeding Gen. Cram) in 1870, and the work of improvement was actually commenced under Gen. Poe's direction, the construction during his incumbency consisting of canal enlargement, but work of preparing the plans for the lock went on simultaneously, following the general lines of Gen. Cram's project. The plans were completed and the lock now called the Weitzel Lock was built under the direction of Gen. Godfrey Weitzel, who relieved Gen. Poe May 1st, 1873. Gen. Weitzel remained in charge of the district until 1882, the year after the Weitzel Lock had been opened to navigation. Before he was relieved he took the initiative toward the further enlargement of the waterway and the building of a new lock, which work was subsequently carried out by Gen. Poe.

A. NOBLE.

From Ex-Senator Thomas W. Palmer.

Detroit, Mich., July 25, 1905.

Hon. Peter White: Your kind invitation to the semi-centennial has been received, and would have been accepted with pleasure had my health permitted, but as it is I will have to decline with thanks.

Probably no other white man unless it be yourself has had as peculiar experiences with Lake Superior as myself, extending over so long a time. In 1847 my father, who had some copper claims on the Porcupine mountains, went to Copper Harbor and there took a clinker-built boat with six oars, which he owned, and started for the head of the lake. The party consisted of Thomas Cummings, afterwards Governor of Nebraska; James Witherell, a cousin of mine, afterwards in the United States army, who died at the commencement of the civil war; a nephew of Professor Bowles of Ohio; myself, and a voyageur, named Charpautier, and an Indian. There were six oars and I pulled the stroke-oar,

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having a good ear for music. We coasted along the shore up to Fond-du-Lac, now Duluth, then up the bay of St. Louis and up the La Gauche river for fourteen miles, thence by trail over to the falls of the Black river, then back again to the Soo, coasting all the way. There were a thousand pleasant incidences which will not pay to recite in this letter. On our return, near Marquette, we saw a man on shore waving a white handkerchief. We put in and found him at the mouth of the Chocolate river. His name was Carr, and he had a chisel in his hand which he had hammered out of the iron ore which was taken out of what was afterwards known as the Jackson mine.

At that time the *Julia Palmer* was on the lake and I think the schooner *Merchant*. If I remember right at that time or shortly after Mr. Oliver Newberry had built the schooner *Napoleon*, and shipped her up as cargo and set her up above the Soo at the rapids, as least so the story went at that time.

I remember well the Tobacco, Yellow Dog, and Montreal rivers, and the hamlets of Copper Harbor, Eagle River, and Eagle Harbor. We stopped at La Pointe, where there was a mission and where Mr. Oaks and Dr. Borup were Indian traders. They and a son-in-law of Mr. Oaks, I think, were the only white men we saw after leaving Iron river. At that time the great iron deposits at the head of the lake were never spoken of if known.

I was chairman of the water-ways convention held at the Soo about twenty years ago, which gave the impulse if it was not the initiative of the great improvements consisting of the great lock and the Hay Lake Channel.

Hoping that the occasion will be all that you expect, I have the honor to be,

Yours very truly,

T. W. PALMER.

From Hon. William E. Haynes.

Fremont, Ohio, July 29, 1905.

Gentlemen: I was one of the pioneer navigators of Lake Superior. In the winter of 1848-49, at Cleveland, Ohio, I was employed by John R. Livingston, managing owner of the Lake Superior Transportation Company, on the recommendation of Capt. Benjamin Stannard (well known to older residents of the Sault) to go to Lake Superior as clerk of the propeller *Napoleon*, then being built.

The men interested in the company were Messrs. McKnight, Livingston, Barbeau and Whiting. The only vessels on Lake Superior at this time were the *Napoleon*, commanded by Captain Clark, for passengers and the *Independence* for freight traffic, Captain Ryder being the master and Charles Hatch, clerk. The *Napoleon* made regular trips to what was then Carp River, now Marquette, Copper Harbor, Eagle Harbor, Eagle

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River, Ontonagon, Isle Royal; and occasional trips to La Pointe; also to what is now Duluth and Fort William, Canada.

At this time the only lighthouses on Lake Superior were at Whitefish Point and Eagle Harbor, and all freight was transferred by wagon from the Sault landing across the portage and loaded on flat boats, there being no docks or landing on Lake Superior other than Copper and Eagle Harbors. The principal traffic of the *Napoleon* and the *Independence* was the carrying of mining supplies and machinery, which were used in developing Copper Falls Mine, the North Western at Eagle Harbor, the Cliff mine at Eagle river, the Minnesota at Ontonagon and the Isle Royal Mining Co., and on the return bringing mass copper.

To give all my recollections of early days on Lake Superior would make my letter too lengthy for this occasion.

Later as a member of the House of Representatives from the Toledo, Ohio, district, in the 51st and 52nd Congresses, and especially as a member of the Committee on Rivers and Harbors in the 52nd Congress, I was interested in and aided in the legislation for the construction and enlargement of the canal, my early experience as a sailor on Lake Superior giving me a clear understanding of the needs of a larger canal at the Sault.

Having visited Lake Superior frequently, the contrast and the difference in the variety and amount of traffic between the time I sailed on Lake Superior and the present time can only be realized by one who, like myself, saw it in the early days.

Very respectfully yours,

WM. E. HAYNES.

From John Coburn, Esq.

Indianapolis, Ind., July 5th, 1905.

Peter White: Your invitation to attend the fiftieth anniversary of the opening of the St. Mary's Falls Canal reminds me of an event that occurred at Sault Ste. Marie in the fall of 1851. I had been on a visit to my brother, who lived at Ontonagon, on the south shore of Lake Superior. On my return home to Indianapolis our steamboat, *Napoleon*, was driven back by a storm on the lake to La Pointe, where we laid a few days and then made our way on that wretched little schooner to the "Soo."

And while waiting there for a boat to carry us to Detroit, the crowd at the Sault concluded to hold a national convention, and at this convention resolutions were passed declaring the importance of a ship canal there, connecting Lake Superior with the lower lakes. And the members of this convention pledged themselves to urge upon their members of Congress at home the passage of a law making an appropriation for its construction. This project was carried out and the result was an appropriation during the next session of Congress. And in less than two years boats passed up into Lake Superior through this canal.

THE SAINT MARY'S CANAL

Suddenly values increased all over the Lake Superior region and the great iron and copper mines were wonderfully developed.

As I look back at the attitude of the Democratic party then, in relation to the improvement of rivers and harbors, I am filled with astonishment. But the baleful influence of the followers of Calhoun was dominant in that party then. The quibbles about the constitutional powers of Congress to improve rivers and harbors and other great public works, seem now to belong to the dark ages.

JOHN COBURN.

From George H. Cannon.

Washington, May 15, 1905.

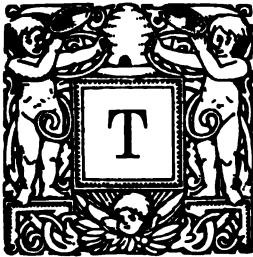
Hon. Peter White: I was at the "Soo" in 1846-7 and several times during the digging of the big ditch, and would also add as an item of some interest to me now, that by invitation I spent an evening at the residence of Major Canfield in Detroit in company with William A. Burt in discussing the survey of the canal and matters in relation thereto. Mr. Canfield and Mr. Burt left Detroit within a few days to make a preliminary survey of the proposed canal. I did not accompany them, as ordinary help could be obtained there. This item of personal history remains with me as a pleasing memory of the years so long past.

GEO. H. CANNON.



LIGHT-HOUSE TENDER SUMAC,
Commander John M. Orchard, U. S. N., Inspector 11th District.

Incidents of the Celebration



THE newspaper reports of the semi-centennial celebration were numerous and extended. The Associated Press sent full reports to the afternoon papers; the *Marine Review* was represented by its owner, Mr. Penton, and its editor, Mr. Ralph D. Williams; the Lake Superior Press Association had headquarters in the city, and provided facilities for correspondents; and the Detroit papers were represented by staff correspondents. The Sault Ste. Marie *Evening News*, edited by Mr. W. F. Knox, reported the celebration fully and accurately, and its pages were enlivened by interviews, reminiscences and incidents, besides containing special articles of permanent value. From these reports the following extracts have been selected:

THE VICE-PRESIDENT AND THE GOVERNOR ARRIVE.

Charles Warren Fairbanks, Vice-President of the United States of America and guest of honor of Sault Ste. Marie for the semi-centennial celebration of the St. Mary's falls canal and locks, arrived in the city last night in the steamer *Yantic*, accompanied by such a distinguished company as has seldom honored the Soo with a visit. The Governor of the commonwealth of Michigan accompanied by his entire personal staff both civil and military, was with the vice president.

The arrival of the vice-president was the occasion of a splendid military demonstration. Col. Robert J. Bates, commanding a battalion of his regiment, the Third Michigan, including also the regimental band, met the *Yantic* at the government pier and escorted Vice-President Fairbanks and Governor Warner to the Hotel Iroquois, where they are making their headquarters during the celebration. This demonstration was in effect the opening of the celebration. It was a striking pageant that marked the coming of the distinguished guests. A court of honor was Portage avenue with its decorations of brilliant lights, flowing banners, bunting, flags and all other forms in which Old Glory appears. The streets were crowded with cheering visitors and citizens and the magnificent proportions of the great fete were at once apparent.

The following were the members of the party accompanying the Vice-President and the Governor:

Joseph Walsh, Assistant Inspector General; Major Charles A. Vernon, United States Army; O. W. Achard, Commissary, Michigan National Guard; Gen. W. T. McGurrian, Adjutant General; Col. W. E. Stuart, Aide-de-Camp; Col. Thomas C. Morgan, A. D. C.; Colonel Holmes, A. D. C.; Major Hardy and Col. James N. Cox, Assistant Adjutant Generals; James T. Bradley, Auditor General; John Wilkerson, Deputy Auditor General; W. H. Rose, Commissioner of the State Land Office; H. O. Sheldon, Chief Clerk of the Board of Auditors; Frank P. Glazier, State Treasurer; W. W. Wedemeyer, ex-Consul to British Guiana; T. W. Atwood, State Railroad Commissioner; D. H. Clark, Deputy Railroad Commissioner.

THE SAINT MARY'S CANAL

THE NAVAL PARADE.

With thunderous salute of guns and whistles from all the vessels in the harbor at sunrise the great celebration of the fiftieth anniversary of the opening of the locks began this morning. Even at that early hour the river front was lined with masses of people eager to take in every feature of the celebration.

Then came the spectacular opening of the celebration, the naval parade embracing all the United States craft present for the celebration. The parade started at 9:30 o'clock with the boats passing up through the Poe lock. All morning the vessels had been putting on holiday attire and every one was attractively decorated. From the peaks of the spars gay colors streamed and while boats have been during all of its history a part of the very life of the people of the Sault, they saw this morning the brightest, gayest marine picture of their lives.



THE APPROACH TO SAULT STE. MARIE CANAL.

When Superintendent MacKenzie had the lock prepared for the reception of the boats the *Tuscarora*, flagship of the squadron, steamed into the lock which was crowded to its edge with masses of people in holiday attire and holiday mood. Vice-President Fairbanks occupied the bridge with Captain Dennett and bowed and smiled a greeting to all the folks, along the locks. With him were Senator Burrows, Governor Warner and Hon. H. O. Young, representing this district in congress, and Congressmen Washington Gardner and Roswell P. Bishop. The Third Regiment band played sprightly tunes on the *Tuscarora* as it passed over the route of the parade. The other craft were in the following order:

Steamer *Philadelphia*, flying the Canadian and British flags and bearing the Canadian representatives, with Attorney General Lemieux and Senator Dandurand, the representatives of the Dominion government.

The United States revenue cutter *Morrill*.

The United States patrol boat *Mackinac*.

The United States lighthouse supply boat *Marigold*.

The United States lighthouse supply boat *Amaranth*.

The United States lighthouse supply boat *Sumac*.

The tugs *Schenck*, *Merrick*, *General*, *W. A. Rooth* and *W. H. Seymour*.

The line of boats passed up the American canal, passed above the rapids and locked through the Canadian locks, where they were greeted with all the force that the friendliness of the sister city could display.

Passing out of the Canadian locks the fleet was joined by the United States warship *Wolverine* and the Michigan Naval Brigade ship *Yantic*, as well as a number of yachts, steamers and smaller craft. All of the hundred or more steamers in the river poured out a salute with their whistles as the parade passed.

INCIDENTS OF THE CELEBRATION

As striking as any of the features attendant upon the parade was the crowd. At every vantage point there was a mass of cheering humanity, making natural an expression of wonder as to where they all came from. The magnitude of the celebration began to dawn upon people and there is a certainty now that it will go down into the history of the Soo as the greatest gathering ever witnessed here. Especially to be commended are the members of the lock force. With the immense crowd and the ever present possibility of accident the lockmen kept the stream of humanity which was constantly crossing the gates under control and not a mishap is recorded.

MILITARY PARADE AND REVIEW.

Imposing indeed was the military parade which was the chief feature of the program this afternoon, presenting as it did two battalions of the Michigan militia, two battalions of United States regular infantry, three military bands and the first battalion of the Michigan naval militia as well as all of the distinguished guests who are making the celebration memorable by their presence.

The parade opened at two o'clock on Ashmun street under the direction of Charles T. Harvey, Chief Marshal. In the first division was the First United States Infantry band and the first battalion of the First United States Infantry, under command of Major Robert N. Getty.

In the second division was the Third regiment band of the Michigan National Guard, the second battalion of the Third regiment and the first battalion of the Third regiment, under command of Colonel Robert J. Bates.

In the third division was the Calumet and Hecla band, the marines and sailors of the United States Navy from the U. S. S. *Wolverine*, under the command of Commander H. Morrell, U. S. N.

The fourth division consisted of the first battalion of the Michigan Naval Militia, including the divisions from Detroit, Saginaw and Benton Harbor, under command of Commander Frederick D. Standish. The fifth division was composed of carriages bearing the guests of the city:

The Vice-President of the United States; the Governor of Michigan and staff; with the Mayor of the city of Sault Ste. Marie; the Lake Superior Canal Commission; speakers at the commemorative exercises, including United States Senators and Members of Congress and representatives of the Dominion of Canada; the United States engineer and general superintendent in charge of the United States ship canal and engineers and general superintendents formerly in charge; the general superintendent of the Canadian Ship Canal; members of the Senate and House of Representatives of Michigan; State officials, and other distinguished guests.

The following was the line of march:

East on Spruce street to Bingham, north on Bingham to Portage, west on Portage to Ashmun, south on Ashmun to Spruce, west on Spruce to Magazine, north on Magazine to Portage, east on Portage to Ashmun, north on Ashmun to Water, east on Water to Old Fort Brady Canal park, and thence on Water Front passing reviewing stand at Brady Terrace. The parade was reviewed from the stand in the lower park by Vice-President Fairbanks and Governor Warner, after which it dispersed. The pageant was witnessed all along the line of march by immense crowds of people, the crowds continuing to be one of the striking features of the celebration. With the immense crowds, the brilliant parade, the splendid decorations, the music of the bands and the cheers of the people the afternoon presented spectacles glowing with the spirit of the celebration, fully in keeping with the grandeur of the occasion and the splendid institution which gave it its inception.

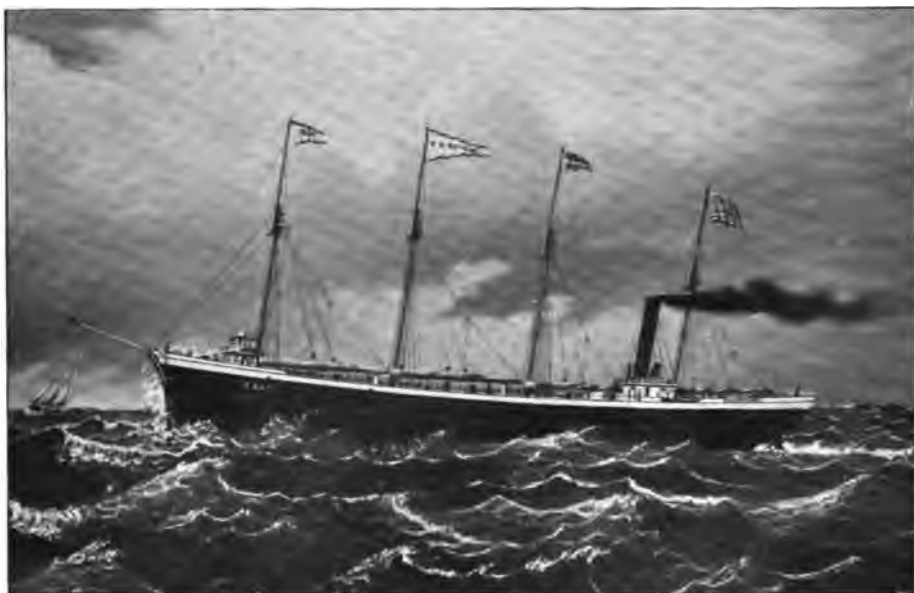
INTERESTING STORY TOLD BY MRS. THOMAS D. GILBERT, DAUGHTER OF FATHER BINGHAM.

There is no old resident of the Soo but remembers "Father" Bingham with feelings of mingled pride and tenderness. His mission to the Indians began in 1828 when he came here for the American Baptist Mission board and ended in 1855 when, in the autumn of life, full of years and of honors, he retired from his life work and moved to Grand Rapids where he died ten years later. Sault Ste. Marie is especially favored in having his daughters, Mrs. Thomas Gilbert and Mrs. J. C. Buchanan, the only remaining members of the Bingham family, here as guests of the Semi-Centennial Commission during the celebration of the ship canal's fiftieth anniversary.

THE SAINT MARY'S CANAL

Mrs. Gilbert was born in the house in which Gen. Lewis Cass concluded his treaty with the Indians, and in the very room where the treaty was signed. Later her father build the old mission house, a large two-story wooden house. "The building was of boards," said Mrs. Gilbert, "for there were saw mills here even then. The chapel was on the upper floor. It was painted yellow. There was a bell on the roof and I remember how we used to ring it when the first boats came up the river in the spring. Down toward the river the ground sloped gradually away. The mission lawn extended to Ridge street and below that there was an oat field belonging to my father. At one side of it, about where Bingham avenue now runs down to the river, there was a path beaten by the soldiers from Fort Brady, which used to be located on the river bank below the rapids. West of the fort there was a little meadow which the soldiers called The Green and the village was built along the river banks above the green."

"There must have been 300 or 400 people in the winter. In the summer the population was variable, just as it is now. Even then, many people came up here from the lower country to spend the summer. The society was very good, though small, for there were always the officers from the fort and others in the government employ."



THE STEAMER V. H. KETCHUM LAUNCHED IN 1874. SHE WAS THE LARGEST VESSEL ON THE LAKES.

"I was on board the first vessel that went through the locks, the steamer *Illinois*, in command of Capt. 'Jack' Wilson. My father and his family were invited on board as guests of Sheldon McKnight, part owner of the vessel. There was some little delay in the working of the locks and we took dinner on board the boat as guests of Mr. McKnight."

Mrs. Gilbert tells a pathetic story of the fear with which the Indians regarded the building of the first canal. There was a treaty with them by which the "Pointe"—the land along the rapids, where the Indians found the best whitefish—was to be their property as long as "the water shall run." In sinking a shaft for the canal the "Pointe" was invaded, the shaft going down through the Indian burying ground. Bones of dead Indians were thrown out and made sport of by the workmen. Shegud, an important Indian chief and a deacon in my father's church, came to see him as to what could be done about it. He wanted my father to go with him to Washington to see the Great Father about what his men were doing. He was in deep distress, but nothing could be done."

INCIDENTS OF THE CELEBRATION

Mrs. Gilbert remembers well the day the first shovelful of earth was lifted from the "Pointe" for the old state canal. Charles T. Harvey, engineer in charge of the canal construction and today one of the city's honored guests, performed the ceremony. The mules used in transporting the dirt were housed in the canal excavation for months and Mrs. Gilbert recalls how they were hoisted out of the cut before the water was let into the locks. Her story of how Captain John Stewart and Albert Averill took the *Napoleon* and the *Independence*—the latter the first steam vessel on Lake Superior—over the portage is very interesting. The boats were taken over on greased ways and it was a laborious job. "As one old lake captain said to my father," said Mrs. Gilbert. "It is a job that requires much perseverance and some grease."

Mrs. Gilbert's recollection of the blowing up of the *Independence* a little later is still vivid. A Mr. Hughson was blown far up in the air and badly scalded. A Mr. Vaughan, of Cleveland, with his great St. Bernard was also blown into the air, but both came safely back to earth. Vaughan was also in the wreck of the steamer *Albany*, Captain Jones, on False Presque Isle, and two other wrecks that year.

Mrs. Gilbert's mother and a young Indian girl of the family were in the wreck of the *Albany*, which left the Sault on the morning of November 26. Though a fierce snow storm was blowing the captain ventured out into Lake Huron, fearing that if he did not take his chances with the storm he might be caught in the ice and forced to spend the winter in the river. The boat went on a rock after losing her rudder, and after pounding there for six hours broke in two, amidships. The crew and passengers got safely ashore. Rumors of the wreck did not reach the Sault until the last of January and it was almost the middle of February before definite news was received. The spot where the *Albany* went down was named Albania, in honor of the lost ship and Roger W. Butterfield, a well known Grand Rapids lawyer, now has a summer cottage there.

THE WARSHIP WOLVERINE.

The chief of the steamers of Uncle Sam, which are present for the celebration, both from historical association and rank is the steamer *Wolverine*, formerly the *Michigan*, the only United States naval vessel on the Great Lakes. The *Wolverine* has passed her semi-centennial, having a somewhat longer service than the locks which she celebrates this week. She is classed as a fourth rate iron cruiser; she is 176 feet 9 inches in length, breadth of beam 26 feet; draught of water 9 feet 6 inches, displacement 685 tons. She was built in sections in Pittsburg in 1843, transported overland by canal and wagon, and put together and launched at Erie, Pa., in 1844, amid much pomp and ceremony, as befitted one of the first iron vessels built. It is stated that people came from far and near to see the "iron pot," as they called it, launched, fully impressed with the prevailing idea that the hull of a vessel built wholly of iron must surely sink. But to their disappointment, she took the water nicely.

The main battery consists of four 6-pounder Hotchkiss, two 6-pounder Driggs-Schweder, two 1-pounder Hotchkiss rapid-fire guns, and there are two Gatling and one Colt's improved rapid-fire guns mounted on carriages. The latter are of the same class guns used on board battleships and cruisers during the Spanish-American war, and which proved so effective against the attacks of torpedo boats and in picking off the gunners and crews of Spanish vessels.

The ship's complement is 74 crew; 24 marines and 8 officers. The commissioned officers are Commander Henry Morrill; executive officer, Lieut. E. H. Dunn; Lieut. Ivan Wettengel; Paymaster M. R. Gouldsborough; Surgeon Hugh De Valin; Chief Boatswain John Sutton.

EARLY DAY TRAFFIC OF LAKE SUPERIOR AS DESCRIBED BY WILLIAM P. SPALDING.

Captain William P. Spalding relates these reminiscences of early navigation on Lake Superior:

The transportation of freight and passengers as early as 1846 was accomplished below the rapids by the steamer *Detroit*, commanded by Capt. Eber B. Ward. This boat had a capacity of 600 to 800 barrels of freight. In those days all freight was estimated by the barrel, instead of by ton as at the present time. The freight charges were about 50 cents a barrel. She carried 75 passengers and made one trip a week.

The freight after arriving here was handled by Colonel Sheldon McKnight and a Mr. Tinker, who built a wharf on the old Fort Brady front. It was carted across the portage to the head of the rapids in wagons. In 1849 or 1850 a strap-railed road was built to carry freight. At the head the freight was transferred to the steamer *Independence*

THE SAINT MARY'S CANAL

and schooners *Swallow*, *Merchant*, *Algonquin* and *Chippewa*, which comprised the Lake Superior fleet. Later another schooner was added to the fleet. She was taken across the portage by Capt. Calvin Ripley.

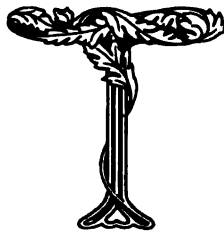
During the year 1846 there was a stampede of explorers and prospectors to Eagle Harbor, Copper Harbor and Eagle River. Some of the characters were of the outlaw type and there was much excitement over the news of finding ore on the big lake. The woods of Keweenaw were filled with men. James Paul and William W. Spalding came up from the lead districts of Wisconsin at that time to look over the country, but did not strike the Sault.

In the fall of 1845 the steamer *Independence* was taken over the portage. She was a propeller in command of Capt. A. J. Averhill. She made but one trip. The steamer *Julia Palmer* was taken across during the summer of the following year. Her trip up the lake was a perilous one. They ran out of fuel and while off the north shore the crew went into the woods to secure enough wood to last them to the end of the voyage.

The *Independence* came to an untimely end in November, 1853. The boat blew up and sank near the head of what is now the ship canal. She laid in the water many years. A few years ago the hull was raised and the wood was found to be in good condition. The wheel is now on exhibition in the canal park.

Freight in those days was transported along what is now Portage avenue. The road ran along an old mill race made by the government at the time Fort Brady was built in 1822.

In 1850 McKnight & Tinker saw a rival enter the business of transporting freight. Charles Bacon, of the firm of Spalding & Bacon, purchased a one-third interest in the steamer *Manhattan* for use above the rapids and built the steamer *Northern* to run in connection on the route below from Cleveland to the Sault. A new pine wharf and plank road followed and the rivalry between the firms was keen. The business reached 100,000 barrels a year. The rate for handling was 12½ cents per barrel. The building of the ship canal ended this business and changed the state of affairs in the Sault.



History of The Saint Mary's Falls Canal

BY JOHN H. GOFF

HISTORY

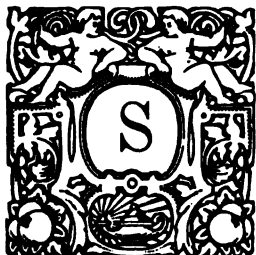
OF THE

SAINT MARY'S FALLS CANAL

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CHAPTER I.

FIRST EFFORTS TOWARDS A CANAL.



PECULATION is open to everyone concerning the originator of the project of a canal and locks to overcome the obstacle to navigation caused by the Falls of St. Mary. The idea in a wordly moment may have occurred to Fathers Dollier and Galinée, who are said to have been the first white men to reach the upper lakes by the Lake Erie and Detroit River route, and who bore the message of the Cross to the Indians. A period of one hundred years in this regard sufficed for General Poe. Several years ago a gentleman in conversation with him claimed the credit of originating the idea. "Sir," said General Poe, beaming down upon him with a broad smile on his face, "you are a very young looking man for your age. There was a canal and lock on the Canadian side of the river in Washington's time." The matter was fresh in the mind of the General, as he had in 1889 received an unofficial report of the discovery of the remains¹ of the old lock, giving a description of the lock by Captain Bruyeres, of the English Army, dated September 10th, 1802:

¹Unearthed in 1889 by Judge Joseph H. Steere, of Sault Ste. Marie, Joseph Cozzens, Provincial Land Surveyor of Sault Ste. Marie, Ontario, and E. S. Wheeler, General Superintendent of St. Mary's Falls Canal.

THE SAINT MARY'S CANAL

"The landing is in a bay immediately at the bottom of the fall on the nearest channel to the land of the north shore. A good wharf for boats is built at the landing, on which a store house, 60 feet long, 30 feet wide, is erected. The wharf is planked, and pathways made and planked all around it. Close to the store a lock is constructed for boats and canoes, being 38 feet long, 8 feet 9 inches wide. The lower gate lets down by a windlass; the upper has two folding gates with a sluice. The water rises 9 feet in the lock. A leading trough of timber, framed and planked, 300 feet in length, 8 feet 9 inches wide, 8 feet high, supported and leveled on beams of cedar through the swamp is constructed to conduct the water from the canal to the lock. A road raised and planked 12 feet wide for cattle, extends the whole length of the trough. The canal begins at the head of it, which is a channel cleared of rocks and the projecting points excavated to admit the passage of canoes and boats. This canal is about 2,580 feet in length, with a raised bridge or pathway of round logs at the side of it 12 feet wide for oxen to track the boats. About 170 feet from the upper part of the canal a storehouse is built, 36 feet long, 23 feet wide. An excellent sawmill for two saws is constructed and placed in a line with the lock, parallel to it."

This lock was built in 1797 by the North West Company, which was at first a rival of the Hudson Bay Fur Company, and afterwards amalgamated with it.¹ It stands to the credit of Francis H. Clergue that the remains of this old lock have been preserved, to the great gratification of tourists.

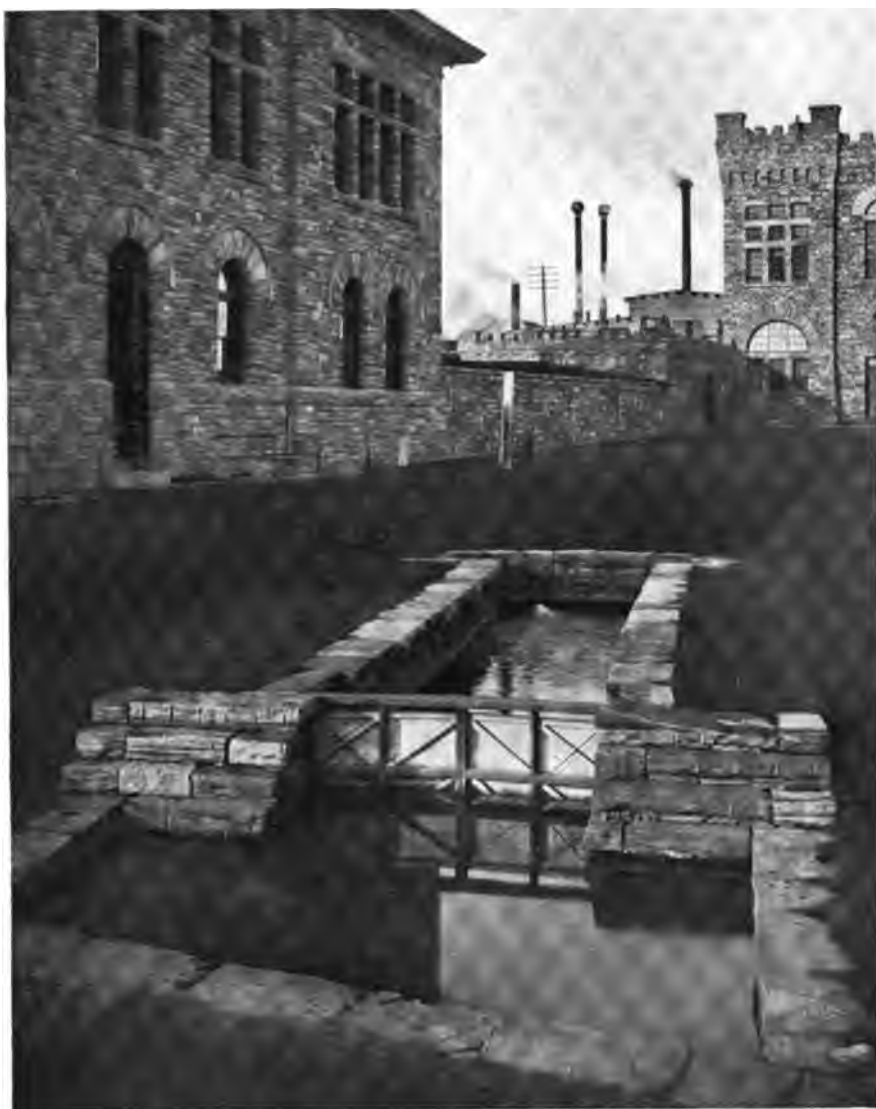
Samuel Hawkins, Special Agent of the Government, with reference to the disputed boundary line between the United States and Great Britain, running through the Great Lakes and rivers, reported in 1817 that immediately above the falls, upon the American side of the Strait, was a cove, the arc of which was bounded down to the heights near the harbor by a strip of marshy land, and that a canal for vessels drawing ten feet of water could be cut here at an inconsiderable expense.

Concerning the early history of the canal, many writers assume that Michigan was admitted into the Union in 1836. This is not strictly correct. While it is true that the people of Michigan had adopted a constitution in 1835, and had elected State and County officers thereunder, and were in all respects organized as a state, and probably ought to have been admitted, yet the state was not admitted into the Union until the Act of Congress of January 26th, 1837.²

January 2nd, 1837, Governor Stevens T. Mason, in a message to the Legislature, mentioned the need of communication for shipping around the

¹Canadian Magazine, Vol. 1, p. 590, March, 1893—October, 1893. Article of Barrister J. J. Kehoe, of Sault Ste. Marie, Ontario.

²Scott v. Jones, 5 Howard (U. S.), 345.
5th Statutes at Large, p. 144.



NORTHWEST FUR COMPANY LOCK, BUILT IN 1797.

T H E S A I N T M A R Y ' S C A N A L

falls of the St. Mary's River. Suggesting that the work should be considered essentially national, he asked that Congress be memorialized for an appropriation for the construction of the canal, and if the government refused the appropriation, he stated they should not lose sight of the importance of making it a State improvement.

On March 21, 1837, the Legislature of the State passed an act authorizing a loan of a sum not exceeding five million dollars, to be expended for the purposes of internal improvements within the state, pursuant to appropriations made by law. This loan was to be paid into the treasury of the state, and was denominated "Internal Improvement Fund." The faith of the state was pledged for the payment of the loan. A sinking fund was provided for. One day afterwards the Legislature directed that there be passed to the credit of the internal improvement fund as a loan to said fund, all moneys which were then or should come into the treasury before January 1st, 1838, by virtue of the Act of Congress to regulate the deposits of public money, approved June 23, A. D. 1836. The Legislature, on March 21st, 1837, provided for a Board of Commissioners on Internal Improvements, to consist of seven members, the Governor of the State being ex officio one of that number and President of the Board. The board was to have the general care and superintendence of all canals, railroads and other improvements, and on the same day an act authorizing the construction of a ship canal around the Falls of St. Mary's was passed, which authorized the Governor to appoint a competent engineer to proceed to the Falls of St. Mary's, in the County of Chippewa, and make such surveys and examinations as were necessary for the construction of a ship canal around the falls. The engineer was required to make a report to the Governor, accompanied by maps, profiles and estimated expenses of the contemplated canal. Twenty-five thousand dollars was appropriated out of the moneys of the state for internal improvements, to be applied towards the construction of the canal. By virtue of the act above referred to, the Governor appointed John Almy, as the engineer to make the surveys, which were completed and a report made by the engineer on December 16, 1837.¹

Mr. Almy stated in his report that to avoid great hydraulic pressure on the side walls and gates, he proposed to divide the locks into three lifts of six feet each, and that the canal would be large enough to accommodate the larger class of sailing vessels then used. His estimates were as follows:

¹Senate Doc. 1837, p. 257. History of St. Mary's Falls Ship Canal (1877), by William Chandler.

Algon
L

5

40

9

CANADIAN

23

VIDAL

R. GAS B

25

V10
3H

25

4

Bradley & Wal

Saw Mill

Chart preparation

THE BEGINNINGS

Total cost of rock and earth excavation.....	\$ 51,112.80
Lock No. 1.....	13,265.00
Lock No. 2.....	14,915.00
Lock No. 3.....	15,376.00
Contingencies	9,376.00
	<hr/>
	\$104,044.80

Laying down and filling 700 feet of pier...	\$6,500.00
Guard gates.....	2,000.00
	<hr/>
	\$ 8,500.00

Total cost of canal and locks..... \$112,544.80

The proposed width of the canal was 75 feet, the depth 10 feet, width of locks 32 feet.¹

It will be seen by reference to the Governor's message that the work was considered to be national in its character. Consistently with this idea, the Legislature in January, 1838, adopted a joint resolution calling, without result, upon Congress for a donation of land to aid in the construction of the ship canal. Governor Mason, in his message early in 1838, directed the attention of the Legislature to the report of the engineer, and urged further appropriations, and early in April a supplementary act was passed, directing the Commissioners on Internal Improvements to proceed to the letting of the whole or a part of the St. Mary's ship canal, and appropriating \$25,000 in addition to the \$25,000 already appropriated. The appropriation was subject to the proviso, that Congress did not at its then present session make an appropriation for the purposes contemplated by the act.

On September 7th, 1838, Rix Robinson, as Commissioner, on behalf of the state, entered into a contract with James Smith and Urial Driggs, of Buffalo, N. Y., under the firm name of Smith & Driggs, for the construction of the upper level of the canal. The contract was required to be completed by September 1st, 1839. In the latter part of April, 1839, the Board of Commissioners organized under the new act of April 20th, of the same year, and elected Rix Robinson President, and the charge of the construction of the canal at Sault Ste. Marie, among other improvements, was assigned to Mr. Robinson. Tracy McCracken was appointed by the board, Chief Engineer of the canal. Aaron Weeks, of Mt. Clemens, Mich., on the day of the date of the contract, made an agreement with Smith & Driggs whereby they assigned to him an equal undivided one-third interest in their contract,

¹History of St. Mary's Falls Ship Canal. 1877. Wm. Chandler.

THE SAINT MARY'S CANAL

and in consideration of the assignment Mr. Weeks turned into the partnership a vessel called the *Eliza Ward*, of seventy or eighty tons burden, completely rigged and seaworthy. Mr. Weeks, by this agreement, subject to the assent and approval of Commissioner Robinson, afterwards obtained, became an equal partner with Smith & Driggs, under the firm name of Smith, Driggs & Weeks. Mr. Weeks agreed to devote half his time to superintending the construction of the work, and to furnish flour, pork and other materials necessary to carry on the work at the prime cost.

Before anything was done by the contractors the Legislature, April 9, 1839, authorized an advance to them on good security of the sum of \$5,000.¹ Meantime, January 7th, 1839, Senator John Norvell, from Michigan, had induced the Senate of the United States to act to the extent of instructing the Committee on Public Lands to inquire into the expediency of granting one hundred thousand acres of land to the State of Michigan, the proceeds of which should be applied to the construction of a canal, and one week thereafter, William Root, Lieutenant of the Fifth U. S. Infantry, Acting Assistant Quartermaster at Fort Brady, informed the War Department of the intention of the State of Michigan to construct a canal around the rapids of St. Mary, and that it would interfere with the improvements made by the United States, amongst which a mill race was regarded as one of the greatest importance, and requested orders. It was not until March 6, 1839, that the War Department replied to Lieutenant Root, by Henry Stanton, Acting Quartermaster-General: "Your letter of the 14th of January has been received. It could not, it is presumed, have been the intention of the Legislature of Michigan, in contracting for the opening of the canal around the rapids of the Ste. Marie, authorized by that body, to interfere with the improvements made by the United States at your post, amongst which, the mill race is regarded as one of the greatest importance. You will, therefore, apprise the contractor that he cannot be allowed, in the execution of his contract, to interfere in any way with that work. As the War Department is, however, unwilling to throw any unnecessary impediment in the way of the important work projected by the State of Michigan, you will not object to its being constructed through the military reservation or grounds, provided it can be done without serious injury to the interests of the United States."

The sawmill operated by means of this raceway was destroyed by fire between July 11, 1826, and August 18, of the same year.² Another mill had probably been rebuilt before 1839.

Mr. Weeks, one of the contractors in October, 1838, went to Sault Ste. Marie, and looked over the ground for the projected work, to see what was

¹Session Laws, 1839, p. 263.

²"Tour of The Lakes," 1827, by Col. Thomas L. McKenney.

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necessary to carry on the same, and early in 1839, he collected provisions, implements and men necessary to the prosecution of the work, and sailing with the *Eliza Ward*, arrived at Sault Ste. Marie on Saturday evening, the 11th day of May, 1839. Lieutenant Root, on the next day, notified him of the orders from Washington. Thereupon Mr. Weeks, in writing, asked if they would be permitted to cross the mill race with the excavation within the lines laid down by the chief engineer, averring that they were bound to excavate the canal within those lines; that it was impossible to proceed without having exclusive control of the mill race, and that they should proceed to work, and could not allow water to flow through the race where the line of the canal crossed the same. Captain Johnson at once replied that his orders were positive, and the crisis came on May 13th. The contractor set his men, about fifty in number, at work precisely at the place in dispute, and Captain Johnson, of Fort Brady, having under his command about thirty regulars, armed with muskets and bayonets, with drawn sword, marched down upon them and ordered the workmen to stop, which they refused to do. Thereupon the captain wrested from James Sherrill, the foreman, his spade, and the workmen were driven from the grounds.

Lieutenant-Colonel Henry Whiting was then Deputy Quartermaster-General stationed at Detroit. He at once suggested that the opening of the canal be permitted, provided the race was left in no worse condition than it then was and improved if possible. Finally, on August 9th, 1839, an agreement was made which permitted the contractors to proceed. What the United States officials insisted upon and what was agreed to by the State officials was that the raceway of the mill should be left in as good condition at the completion of the ship canal as it was at the commencement of the work, and that nothing should be done in the completion of the work which might serve to impede the effective working of the mill, and that the state engineer should cause a gate to be placed in the raceway, at or near the point of intersection of the canal.

The responsibility for the failure of the contractors has so far been placed upon the Government by those who have touched upon the subject. State pride and possibly lack of examination of the facts in the case may have had an influence at the time and later on public opinion. Where shall the blame be placed? Against the United States it was averred, that its interference by troops with the construction of the canal was unwarranted by the Constitution of the United States and a violation of the rights and sovereignty of the State of Michigan.¹ That the honor of the state had been injured.²

¹Session Laws of 1840, p. 243. Joint Resolution No. 13.

²Message of Gov. Wm. Woodbridge, January 7, 1841.

THE SAINT MARY'S CANAL

Senator William Woodbridge, in the Senate of the United States, in April, 1842, asking for compensation to the contractors in pursuance of instructions from the Legislature¹ set forth the contention of the state.

"If a member of this union—if a state which *you* call a 'sovereign state'—have not the right and power to lay out and establish its own roads according to its own pleasure, if it may not excavate its own canals and erect and construct its own public works according to its own opinion as to what it may consider its own people or the public good may require, without first obtaining your permission and consent—it is quite time it should be known. And if a state has not that power, it will not be immaterial to consider what attributes of 'sovereignty' sovereign states of this union do possess, or whether any. And which of her internal concerns, if any, she may herself regulate, if the eminent domain rest here, and all sovereignty remain with this national government; if the authorized agents of that state, when in the execution of the orders of its government, are to be thus set at defiance and treated with contumely by *your* soldiers, it is at least desirable that you and the nation should know it.²

In behalf of the government it may be confidently asserted that the land through which the state proposed to excavate the canal, while not included within the Virginia Cession, or the Massachusetts or Connecticut Cessions, was included in the treaty with and ceded to it by Great Britain in 1783, and was government land.³ Moreover, the government had in 1820 obligated itself to secure to the Chippewa Indians a perpetual right of fishing in the rapids of the St. Mary's and a place of encampment convenient thereto, and afterwards, in 1845, did survey and locate their reserve, which included the proposed canal zone.

Moreover, the state, as a condition of its admission into the Union, had stipulated that it would in no wise interfere with the primary disposal of the soil within the same by the United States.⁴

Considering these facts some notice may also be taken of the spirit of the military officers of the government shown by waiving all its rights and simply requiring the protection of the old race-way and the old sawmill, which was very badly out of repair. Lieutenant-Colonel Henry Whiting, of Detroit, writing to Colonel Stanton at Washington, under date of May 28th, 1839, said:

"The proposed canal will no doubt hereafter be of much importance to the general interests of this section of the country, and it would probably

¹Session Laws, 1840, p. 243, Joint Resolution No. 13.

²Globe. Vol. XI. Appendix 796.

³Map showing land acquired by U. S. from 1783 to 1885.
McMaster's History of U. S. Vol. 2. End of volume

⁴Laws of 1836, p. 57.

THE BEGINNINGS

not be worth while to frustrate its construction out of a regard to an establishment which is likely to be so little beneficial to the public as this old and almost useless sawmill."

It has already appeared that on August 9, 1839 the authorities of the state and government had come to an agreement whereby the contractors could proceed.

Contractor Weeks, in a letter of December 11, 1839, to Governor elect Woodbridge, explained why he commenced work at the exact place of dispute, and alleged that the principal reason of attempting to work at the place where he did, was because it was absolutely necessary to do it for the purpose of draining the ground and preparing it for excavation, and because he could not so profitably prosecute his work by beginning at any other point; and that he could find nothing in his contract which directed any point at which he should commence, and that he knew no good reason why he should not consult his own interest in the matter, especially when it did not in any manner affect the interest of the state.

The contractors, however, were the subject of some resolutions by the Board of Internal Improvements which asserted that they viewed with regret the course pursued by the contractors and that, in the opinion of the board, it evinced a want of good faith on their part in not prosecuting their work agreeable to the meaning and stipulations of their contract, inasmuch as abundant room was to be had on the work for them to commence and continue their labors for a length of time, without interfering with the mill-race or feeder of the government sawmill at that post.

The board directed the contractors immediately to proceed energetically with their work, agreeable to the stipulations of their contract, and the president of the board was requested to forward a copy of the resolutions to the engineer having charge of the work, with such instructions as he might deem expedient with regard to the same.

The sagacious Tracy McCracken, engineer of the proposed canal, showing considerable knowledge of the human element in the transaction, reported December 7th, 1839, that the contractors did not re-commence their work; and it was not unreasonable to suppose that they might have been influenced to commence the work at the United States mill race and in the course which they had since pursued, by the advance of \$5,000, which they obtained from the state; that the fact that nothing had been done upon the canal, although moneys had been advanced to aid in its construction, and that other public works towards which no advances had been made, had been successfully prosecuted, served to confirm the opinion which he had previously entertained of the impolicy of advancing to contractors.

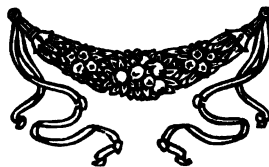
T H E S A I N T M A R Y ' S C A N A L

Joel R. Poinsett was Secretary of War in 1839. He had been a Representative in Congress from 1821 to 1825, and had been Minister to Mexico in 1825, and was appointed Secretary of War by President VanBuren at the beginning of his administration.¹ Hailing from the State of South Carolina, it requires great credulity to believe that he would order the invasion of a state by United States troops.

Did the contractor on that May morning in 1839 wish to legally abandon the work? If so, the commencement of the work at the exact point in dispute gave a basis for the claim that he was entitled to damages because he was prevented by a force beyond his control from doing the work.

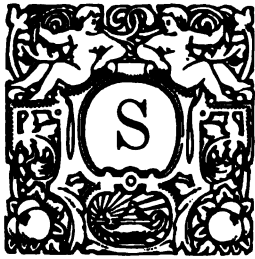
Secretary Poinsett replying to a letter from Governor Mason to the President, said, "If the contractors, instead of committing a trespass upon the lands of the United States, had sought by a friendly conference to show the officer commanding the station that the course proposed would not be injurious to the interests of the government, they would have been permitted to proceed in the execution of the work, as they have since been, by the instructions of the Acting Quartermaster-General, addressed to Lieutenant-Colonel Whiting."

¹Statesman's Manual, Williams. Vol. 12, pp. 1549-1554.



CHAPTER II.

SOME REASONS FOR THE DELAY IN MAKING APPROPRIATIONS FOR THE CONSTRUCTION OF THE CANAL.



SEVERAL years elapsed between that May day in 1839, when the sword of Captain Johnson and the bayonets of his regulars shone brightly in the sunlight on the Indian Reserve, and the date of the land grant of 1852. There were reasons therefor. It must be admitted that the opinions held by many statesmen in the early days of the republic as to the power of Congress to regulate commerce among the states were favorable to the construction of canals. All trade on a large scale was conducted by water, and for this reason the Federal power over commerce was naturally defined in terms of water transportation.¹

This interpretation of the Constitution was so deeply impressed on the minds of some statesmen that it was insisted upon even after transportation of goods by railroads between the states became considerable in amount.

Referring to the opinions of Senator Cass in regard to commerce, in 1856, Senator Toombs, of Georgia, said:

"His idea is that Congress can regulate commerce where it is transported through the medium of water, but cannot regulate it where it runs on iron rails, or on common roads. What is the difference?

Mr. Cass: The United States have jurisdiction in one case and not in the other.

Mr. Toombs: The question of jurisdiction does not affect this matter in the slightest degree. The power to regulate commerce * * * is universal among the several states, by land or water. The difference which the Senator takes is that you can regulate commerce on a river from one state to another, but you cannot regulate commerce which runs on a railroad from one state to another. There is no such distinction in the Constitution. I say they are identically the same thing. The old idea that commerce could only be carried on by water is completely exploded. It

¹E. Parmelee Prentice. "State Monopolies of Interstate Commerce." North American Review, April, 1904. Vol. 178. No. 4, p. 500.

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suited one age and one people, but it is not true now. The great bulk of commerce between our states is not by water at all, but by land."¹

On the other hand, Henry Clay, who had formerly been a great advocate of internal improvements by the government, was striving to have the public lands sold, and the proceeds equitably divided among the several states, and he expected that the states in this manner would be assisted in the construction of improvements within their borders.² No aid in obtaining a land grant or a grant of money directly to the state could therefore be expected from him.

Again at this time, under a constitution ordained to establish justice and promote the general welfare of the people, the greatest inequality and injustice existed between the east and the great west of the republic. Admiralty courts, free from the technicalities and vexatious delays of common law procedure, with authority to divide damages in case of the mutual fault of two vessels, and enforcing the principles of general average, whereby one whose goods were successfully sacrificed to save the ship and goods, could obtain contribution for his loss, and which applied to the matters brought here before them, broad principles of equity, held open doors to owner, master or seaman of ships that sailed the ocean. Congress in 1838³ had assumed jurisdiction of the lakes and required that on them, including Superior, long boats or yawls should be carried by steamers, and that iron rods or chains instead of wheel or tiller ropes should be used and in other respects imposed regulations for the security of passengers, yet Lake Superior, with a depth in places of one thousand feet, with an area of 32,000 square miles, and lying over 600 feet above the level of the sea, and Lake Michigan, and other Great Lakes and rivers of the west, by a decision in 1825 of the highest tribunal in the land, had been held not to be within the jurisdiction of the District Courts in Admiralty, for the reason that there was no ebb and flow of the tide in those waters, which was held to be the test of jurisdiction.⁴ As a result of this established salt water test, one western court went so far as to hold that general average contribution could not be enforced in the common law courts.⁵ The lack of equality before the law, naturally would produce a lack of respect concerning the waters in question, and legislation for their improvement might therefore be delayed. Such a condition of inequality was intolerable. Congress as we have seen as early as 1838 had assumed jurisdiction of the lakes and the credit is given to John Wentworth, a representative from the State of Illinois, for originating a memorial to congress, asking for an extension of

¹34 Cong., 1st Session, Appendix to Cong. Globe, p. 1043, 1856.

²Life and Speeches of Henry Clay. Mallory, Vol. 2, p. 379.

³5th Stat. at Large, pp. 304-306.

⁴The Thomas Jefferson, 10 Wheaton, p. 428.

⁵Rossiter v. Chester, 1 Doug. (Mich.), p. 154 (1843).

THE PERIOD OF DELAY

maritime jurisdiction over the northern lakes and connecting waters. Stephen A. Douglass, representative from the same State, was instrumental in procuring the passage of the act of 1845, which to a certain extent lessened the inequality of which we have spoken.¹ This act provided that in all suits brought in the admiralty courts, in matters of contract or tort, arising in, upon or concerning steam boats and other vessels of twenty tons burden and upwards, enrolled and licensed for the coasting trade, and at the time employed in the business of commerce and navigation between ports and places in different States and Territories, upon the Lakes and navigable waters connecting said Lakes, the remedies and forms of process and modes of proceeding should be the same as were then, or might be used by courts of admiralty in cases of maritime jurisdiction.² Complete equality was soon afterwards established. The Supreme Court in 1851, about a year before the grant of lands by Congress reversed its early decision, and Chief Justice Taney, delivering the opinion of the court, among other things, said:

"The Union is formed upon the basis of equal rights among all the States. Courts of admiralty have been found necessary in all commercial countries, not only for the safety and convenience of commerce, and the speedy decision of controversies, where delay would often be ruin, but also to administer the laws of nations in a season of war, and to determine the validity of captures and questions of prize or no prize in a judicial proceeding. And it would be contrary to the first principles on which the Union was formed to confine these rights to the States bordering on the Atlantic, and to the tide water rivers connected with it, and to deny them to the citizens who border on the lakes, and the great navigable streams which flow through the western states. Certainly such was not the intention of the framers of the Constitution; and if such be the construction finally given to it by this Court, it must necessarily produce great public inconveniences, and at the same time fail to accomplish one of the great objects of the framers of the Constitution; that is, a perfect equality in the rights and the privileges of the citizens of the different States; not only in the laws of the general government, but in the mode of administering them. That equality does not exist, if the commerce on the lakes and on the navigable waters of the West are denied the benefits of the same courts and the same jurisdiction for its protection which the Constitution secures to the States bordering on the Atlantic."³

It cannot escape attention that the doctrine enunciated in the platform of one of the great political parties was unfavorable to internal improvements. The national convention of the Democratic party assembled at

¹History of Congress, A. D. 1848. Henry G. Wheeler.

²Stat. at Large, p. 726.

³The Genesee Chief. 12 How., 443 (1851).

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Baltimore on May 5, 1840, declared,¹ "That the Constitution does not confer upon the general government the power to commence and carry on a general system of internal improvements." This declaration was reiterated and affirmed in 1844 and 1848, and even later by the same party, but it was construed broadly by members of that party in the West. So liberal was their construction, that a writer in the *Southern Quarterly Review*² in 1846 was led to remark, "There are Democrats and there are Whigs on other subjects, but upon the matter of appropriations for any Western object, whether lands or money, the Western members of Congress move nearly as one man. If they differ, it is only because the sweep into the treasury is not large enough to make all participants." There were also vetoes in those days. President Tyler in 1844, while he signed the bill, making appropriations for western rivers and harbors,³ vetoed the bill known as the Eastern Harbor bill. He pocketed the river and harbor bill of 1845, and on August 3rd, 1846, President Polk vetoed the river and harbor bill,⁴ alleging that in his opinion the Constitution had not conferred on the Federal Government power to construct internal improvements within the States, or to appropriate money for that purpose. President Polk also pocketed the river and harbor bill of 1847. A two-thirds vote of Congress could not be secured to override these vetoes. Prospects for the construction by government aid of a canal within the State of Michigan were not brightened by vetoes based on a lack of power in Congress to aid in internal improvements.

The convention held at the City of Memphis, Tennessee, on the 12th of November, 1845, to consider the commercial relations of the Southwestern States and of the valley of the Mississippi with other portions of the republic, declared that the improvement and preservation of the navigation of the Mississippi and Ohio rivers were objects as strictly national as any other appropriations for the country, and called for appropriations of money by the general government for such improvement.⁵ Senator John C. Calhoun, Chairman of the Committee of Five of the Senate to whom the memorial and resolutions of the convention were referred, reported from the committee on June 26th, 1846. The committee were of the opinion that canals around falls or other obstructions in the Mississippi and harbors, except for shelter, were beyond the jurisdiction of Congress, and "that in the case of a river whose navigable waters were confined to two states, the general government had no power to make improvements thereof."⁵

¹Cooper's American Politics. Book II, p. 25.

²Vol. 10, p. 387.

³Richardson's Messages, Vol. IV, p. 330-460.

⁴History of Congress, A. D. 1848, by Henry G. Wheeler, Vol. II.

⁵History of Congress, A. D. 1848, Vol. II, p. 359-360. Henry G. Wheeler.

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A year had not passed after the report of Senator Calhoun's committee, before another convention, intended to be non-partisan, was called to consider subjects having a broad scope. The construction of harbors and improvements of rivers and matters pertaining to the prosperity of the West and the development of its resources were to be considered. The call was signed, among others, by John Wentworth, its author; Isaac N. Arnold, and J. Young Scammon, of Chicago, Illinois.

Daniel Webster, unable to attend the convention, writing from Marshfield, expressed his opinion of the power of Congress in regard to canals around falls:

"If, instead of clearing out the rocks, and in that manner improving the channel of a river, it is found better to make a canal around the falls which are in it, I have no doubt whatever of the power of Congress to construct such a canal." And again referring to the question of the exclusive jurisdiction as to rivers within two States, he said: "In my opinion, the provision of the Constitution¹ which forbids a State from entering into any alliance, compact or agreement with another State without the consent of Congress, can draw after it no such conclusions as that, with the consent of Congress two States ought to be bound to improve the navigation of a river which separates their territories; and that therefore, the power of Congress to make such improvements is taken away. A river flowing between two States, and two States only, may be highly important to the commerce of the whole Union. It is sufficient to say that the whole argument is founded on the opinion that the Constitution prohibits more than two States from entering into agreements even with the consent of Congress. This is manifestly untenable; the Constitution extends as fully to agreements between three, four or five States, as between two only, and the consent of Congress makes an agreement between five as valid as between two. If, therefore, two States can improve rivers with the consent of Congress, so can five or more, and if it be a sufficient reason for denying the power of Congress to improve the river in a particular case, that two states can themselves do it, having first obtained the consent of Congress, is an equally valid reason in the case where five or ten states are concerned. They, too, may do the same thing with the consent of Congress. The distinction, therefore, between what may be done by Congress, where only two states are concerned with a river, and what may be done in cases where more than two are so connected, entirely vanishes."²

The convention, pursuant to the call, assembled at Chicago on the 5th day of July, 1847. It is said to have been the largest delegated assembly which ever met in the United States. Delegates to the number of several

¹Art. I, Sec. 10.

²History of Congress, A. D. 1848. Henry G. Wheeler.

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thousand were present. Michigan was well represented. One of the vice-presidents was William Woodbridge. He had served as Secretary and acting Governor of Michigan Territory at various times, and was a member of the Territorial Supreme Court in 1832; a delegate to the Constitutional Convention of 1835, and Governor of the State of Michigan in 1840, and was elected United States Senator in February, 1841. Among the secretaries of the convention was David A. Noble, of Monroe, Michigan. He was a Representative in the Legislature in 1846 and 1847. Calvin Britain and John Biddle were delegates to the convention. Britain had represented the counties of Cass, St. Joseph and Kalamazoo in the Fifth Legislative Council in 1832 and 1833, and John Biddle, of Detroit, had been a territorial delegate for Michigan in 1829 and 1831, and President of the Constitutional Convention of 1835 and Speaker of the House of Representatives of the state in 1841.

There was one prominent man of Michigan whose declination to attend the convention was:

Detroit, May 17, 1847.

Dear Sir—I am much obliged to you for your kind attention in transmitting me an invitation to attend the convention on internal improvements, which will meet in Chicago in July. Circumstances, however, will put it out of my power to be present at that time.

I am, dear sir, Respectfully yours,

LEWIS CASS.

General Cass was looking toward the Presidential chair, and the call for this convention indicated action that would not meet with favor among those who strictly construed the Constitution. One of his biographers, referring to the above letter, states that perhaps no four lines were ever written which had been the subject of so much perversion.¹

The Chicago convention declared that the general government, by extending its jurisdiction over lakes and navigable rivers, subjecting them to the same laws as prevail on the ocean and on its bays and ports, not only for the purpose of revenue but to give security to life and property, by the regulation of steamboats, had precluded itself from denying that jurisdiction for any other legitimate regulation of commerce; if it had power to control and restrain, it must have the same power to protect, assist and facilitate, and if it denied the jurisdiction in the one mode of action, it should renounce it in the other.

The resolutions of the convention also asserted that appropriations for rivers and lakes and the streams connecting them with the ocean, had not been in a just and fair proportion to those made for the benefit of the Atlantic Coast, and called for a correction of such injustice. John C. Spencer and Samuel B. Ruggles, of New York, members of a committee

¹Life of Lewis Cass (1852). William T. Young.

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appointed by the convention for that purpose, drafted a memorial to Congress relative to the matters considered by the convention.¹

Soon after Congress assembled, in 1847, the resolutions of the convention and the memorial, were referred to a committee, but not until President Polk had sent in his message of December 15th, 1847, giving as a reason for declining to approve the river and harbor bill passed in the early part of 1847, that it would seem obvious to the common understanding "that to regulate commerce does not mean to make a road or dig a canal or clean out a river or deepen a harbor."² John Wentworth introduced a resolution in the House, asserting that Congress did have that power, which was passed by a large majority on the 21st of December, 1847, and on June 23rd, 1848, the Committee on Commerce of the House of Representatives made its report concerning the resolutions and memorial of the Chicago convention and the President's message, and submitted certain resolutions which the House, by large majorities, adopted, declaring that the Constitution of the United States vests in Congress the power to appropriate money to open and improve harbors and remove obstructions from navigable rivers, in all cases where such improvements are necessary to the protection and facility of commerce with foreign nations, or the commerce among the states, and that the interests of our national commerce, the common defense and general welfare of the United States, required a judicious exercise of the foregoing power.

The House further asserted that the reasons assigned by the President in his veto message, December 15th, 1847, for his refusal to approve and sign the bill passed March 3, 1847, making appropriations for the improvements of certain harbors and rivers, were deemed insufficient and unsatisfactory.³ Some other of the reasons and excuses for delay in regard to making appropriations in aid of the canal no longer existed in 1850. They had been the paramount importance of the Northeastern boundary question, the final adjustment of a scheme to collect revenue and regulate the deposits, a new tariff system, the settlement of the Oregon question, followed by the outbreak of the Mexican war, and lastly, the Wilmot proviso.⁴

In view of this, and after such a forcible expression of opinion by the immediate representatives of the people, we can see that prospects were more favorable than ever to establish a communication by water between the great lakes, which would eventually become a part of the route that would bring New York 10,000 miles nearer to Canton, China, than by way of the Suez Canal.

¹DeBows Magazine, Vol. 4, p. 125. History of Congress, 1848, by Henry G. Wheeler.

²Richardson's Messages, Vol. IV, p. 625.

³History of Congress, A. D. 1848, by Henry G. Wheeler.

⁴Delegate E. J. Roberts from Houghton, Michigan, in Const. Convention of 1870. Convention Debates, p. 926. Speech of August 3, 1850.

CHAPTER III.

A CHAPTER OF FAILURES.



THE United States soldiers, in May, 1839, did not paralyze the people of the State or its representatives. As soon thereafter as Congress assembled, Senator Norvell gave notice that he would ask leave to introduce, and on the last day of December, 1839, he introduced a bill which donated 100,000 acres of land to aid in the construction of a canal. The Legislature, on March 27th, 1840, asked Congress for a grant of lands. The bill of Senator Norvell came up for consideration by the Senate in the early part of April. He showed that the estimate of cost to render the canal navigable for sloops and schooners was not over \$125,000, and \$200,000 would render it navigable to steamboats. The bill was opposed by Senators Henry Clay and John J. Crittenden, of Kentucky, William C. Preston, of South Carolina, and James Buchanan, of Pennsylvania. But Senators Porter and Norvell, of Michigan, in their advocacy of the bill, found supporters in Senators John Henderson and Robert J. Walker, of Mississippi. Objections to the bill were, that the population of the country surrounding the rapids was sparse, and that the state had only two or three hundred thousand inhabitants, and that the bill was a revival of a magnificent system of internal improvements.

Senator Norvell, replying to Mr. Clay, who asserted that the government had been liberal to the state, and that the proposed canal was remote from business centers, said:

"Sir, this government has been liberal to Michigan with a vengeance! They have refused to complete the roads which they themselves had commenced in that state. They have despoiled her of all her rich and fertile territory on her southern borders. They have received into their treasury only eleven millions of dollars from sales of the public lands within her limits! And, sir, they have graciously expended not quite \$400,000 all told in harbors and roads within those limits.

"These have been the evidence of the liberality of this government toward Michigan, and she may chiefly thank the honorable Senator and his friends for the generous amount of that liberality! But this canal is 'in the moon' or beyond, the extreme verge of civilization! Sir, the Honorable

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Senator from Kentucky (Mr. Clay) ought to have known the country better. Gentlemen have, on this occasion, made a sorry exhibition of their geographical and statistical attainments. The Honorable Senator seems not to have learned that ships and steamboats freighted with merchandise and civilized passengers, have for years ploughed their way to the very foot of this canal; he seems to have yet to learn that the civilized settlement of an American fort has existed there for nearly half a century."

Senator Porter also spoke in support of the bill, and on the last day of April, 1840, it was read a third time and passed the Senate, but made no further progress. The spirits of the advocates of a canal were by this time somewhat depressed.

Evidently having gained some courage, the Legislature, in January, 1843, changed the form of its usual application to Congress for aid, and asked an annual appropriation, for two years, of \$200,000. In January, 1844, the Legislature again requested the Senators and Representatives from the state, to obtain from Congress an appropriation for the construction of the canal.

Senator Porter, in the early part of March, 1844, introduced another bill. It had been the practice to allow soldiers to be employed in the construction of public works, and to allow them the additional pay of fifteen cents per day each, and the author of the bill evidently having in mind the garrison at Fort Brady, provided for employment in the construction of the canal of such portion of the troops of the United States as could be spared from other duties.

This provision met with objection, and it was also objected by Senator Tappan, of Ohio, that as the State of Michigan had not ceded jurisdiction, the general government would have no jurisdiction, no right to collect tolls, and no redress for injuries to the canal. He averred that the government was a most expensive and inefficient agency for the construction of such a work. The clause, as to the employment of soldiers, was stricken out, and the bill passed the Senate on May 29th, 1844, and was received by the House and referred to a committee, where it remained. Early in February, 1845, Representative Robert McClelland, of Michigan, from the Committee on Commerce, reported a bill making appropriations for the construction of a canal, which was referred to the committee of the whole on the State and Union, but no further action was had thereon.

Early in 1846 Alpheus Felch was inaugurated Governor of the State of Michigan. The year following, his message to the Legislature was delivered, early in January, about a month before his election as Senator. He suggested the propriety, unless the speedy action of Congress should render it unnecessary, of committing the construction of a canal to an

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incorporated company, with proper restrictions in its charter, and a reservation of the right, on equitable terms, to purchase the work for the public benefit.

The recommendation of Governor Felch was followed, and a comprehensive act was passed, which was approved March 17th, 1847, after Governor Felch had resigned. It declared that such persons as might thereafter become stockholders therein should be a body corporate under the name and style of the St. Mary's Canal Company, for the purpose of opening and constructing a canal navigation around the Falls of St. Mary's. The idea seems to have been to have a corporate body ready for someone to breathe into it the breath of life.

Governor Felch was elected Senator in February, 1847, and resigned as Governor early in March, 1847.¹ As Senator he made investigations into the prospects of another land grant bill. General Cass thought it entirely hopeless,² but advised conference with some leading Senators. Mr. Felch proposed a bill which appropriated land instead of money, and committed the construction of the work to the state. He called first on Senator Benton, of Missouri, then the oldest member of the Senate, and gave him information of business of national importance in the region of the falls, and Senator Benton promised aid.

Senator William R. King, of Alabama, yielded his objections when Senator Felch had presented the matter to him, notwithstanding he was a strict Constructionist upon the constitutional power of voting money for public works.³

The Legislature, in 1848, requested the Senators and Representatives in Congress to urge the immediate passage of a law ceding to the canal company the right of way over and upon lands belonging to the United States. June 15th, following, Senator Felch reported a bill granting the right of way to the state and a donation of lands, and sought and failed, in December, to have it considered.

Again, on the last day of March, 1849, the Legislature asked appropriations of money. Shrewdly, however, they gave priority to the necessity of the construction by the government of a canal at the Falls of Niagara. In time to come, New York was to be a powerful friend and ally in bringing to its accomplishment the great work at the Rapids of St. Mary.

While the State of Michigan was asking aid for this important internal improvement, the representatives of the people, in constitutional convention assembled, were, in 1850, writing into its organic law prohibitions against any repetition of the bitter experience of the state in regard to internal improvements and providing against the issue of state scrip or other

¹Michigan Manual, 1889, p. 341.

²Mich. Pioneer Collection, Vol. 7, p. 60.

³Mich. Pioneer Collection, Vol. 7, p. 60.

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evidence of state indebtedness, except in certain cases, ordaining that the state should not be interested in any company or corporation, and that it should not be a party to, or interested in any work of internal improvement, "nor engaged in carrying on any such work except in the expenditure of grants to the state of land or other property," and providing that corporations for general business should not be created by special act, but must be formed under general laws,¹ and these provisions were to be utilized as arguments against the grant of aid to build the canal.

In the Thirty-first Congress, Senator Felch introduced a bill, granting aid to the state, and on the 6th day of August, 1850, on his motion, the bill was taken up and considered as in committee of the whole, but was not brought to a vote.

On Friday, August 30th, 1850, on motion of Senator Cass, the Senate again proceeded to the consideration of the bill. Senator Felch submitted amendments to fill in blanks in the first section, which fixed the dimensions of the canal. Senator Dickinson, of New York, asked whether the tolls which would be charged would be equal upon the citizens of the several states. Senator Felch said that there was no provision in the bill, as it then stood, with reference to tolls, and to accomplish the object suggested by Senator Dickinson, he proposed to add a section to come in before the last, as section 5, and this was the section which was carried into the act of August 26, 1852, and which was considered by the Supreme Court in a late case brought by the government to recover surplus tolls remaining in the treasury of the state.²

Senator Dawson, of Georgia, asked whether this canal was not an internal improvement without any limitation for particular purposes; whether it was not giving the power to the state government, and then requiring the state to take upon herself to keep an account current between that state and the general government. Senator Cass replied that this proposition brought up no question of jurisdiction respecting internal improvements, but the right only of the general government to apply a portion of the government lands to raise the value of the remainder. Senator Dawson stated that he did not see any difference between appropriating money and appropriating land on the part of the general government to construct a canal. He opposed the appropriation upon two grounds: First, that they had no right to appropriate to any individual state the public lands which belonged to all the states for the benefit of the individual state alone. Then there was the absence of the principle upon which they had theretofore justified the taking of public lands, which was by taking alternate sections,

¹Constitution of Michigan, 1850.
Art. XIV., Secs. 6, 7, 8, 9.
Art. XV., Sec. 1.

²United States vs. Michigan, 190 U. S., 379, at p. 381. (1902.)

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whereby the value of the remainder would be increased to the value of the whole, before the improvement was made, so that they were left without any principle upon which they had theretofore acted, to vindicate this appropriation. Senator Butler, of South Carolina, was unable to recognize the distinction laid down by Senator Cass, and contended that if they were to appropriate money for internal improvements running through government lands, he could not see why jurisdiction should not be preserved over them for the benefit of the United States to impose such tolls as the government might think proper, without delegating to a state the power to impose tolls ad libitum for a time, and then restrict to a discretion afterwards. He announced that he should vote against the bill, but with very little hope that he should succeed in arresting the matter. Senator Douglas, of Illinois, spoke of his anxiety to see the work constructed that the bill provided for, and of the doubts which he had at first whether he should vote for the bill; that his support of measures for the grant of lands in aid of internal improvements had rested principally upon the ground that the land holder increased the value of the land left, to the amount of the grant. His doubts in this case had arisen because it was not required to take the land in alternate sections along the line of the canal, but he saw at a glance it was impossible to apply the principle of alternate sections to it, because the whole work was confined to a space less than one mile, and the land must be taken, therefore, in tracts elsewhere. He thought that the public lands would be materially benefited by the enhancement of their value, greater than the value of the 500,000 acres of the refuse land in the State of Michigan. Senator John Davis, of Massachusetts, said that he would cheerfully give a half million acres of land provided he could see some distinct assurance that a great public work of this description would be carried into execution, but that he would not give it on the idea that they were to raise the value of the public lands, or that they were to reap to the treasury, or to the country, any benefit whatever, except that it might promote its prosperity by extending its population, by increasing its settlement and by having the land taken up in that way. Senator Jesse D. Bright, of Indiana, replying to the queries of Senator Davis, of Massachusetts, as to the advantages Indiana had derived from the granting of lands within her own borders, spoke of the canal from Evansville, on the banks of the Ohio, to the northeast corner of that state, connecting the waters of the Ohio river with those of the Maumee and Lake Erie, which was located, the greater part of the distance, in the Wabash Valley, through soil as fertile and productive as can be found west of the mountains. That he should not withhold his support to the very important and truly national project contained in the bill. Senator Underwood, of Kentucky, upon the suggestion of Mr. Davis, moved as an amendment that if the state should make a sale of a portion of the lands and be unable to complete the work, the state should account for the lands at not less than

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\$1.25 per acre, which was agreed to by Senator Cass, and the amendment appears in the act of 1852. After some minor amendments, Senator Underwood, of Kentucky, offered a proviso to the second section, that no mineral land belonging to the United States should be selected. This amendment was agreed to, but did not become a part of the law of 1852. The bill, on September 2nd, 1850, passed the Senate, and was sent to the House of Representatives, but did not receive its approval.¹

¹Cong. Globe, 31st Congress, 1st Sess., p. 1806. 2nd Sess., pp. 782-784



CHAPTER IV.

CROSSING THE PORTAGE.



IN early days voyageurs passing up the river to Lake Superior, on arriving at the Falls of St. Mary, were accustomed to make a short portage to the dam, which, with a mill and race, had been constructed about 1822 by the soldiers at Fort Brady; and from above the dam they proceeded by the race or canal to the river again. This was done in 1826 by Colonel Thomas L. McKenney and Governor Cass, joint commissioners in negotiating the treaty of Fond du Lac with the Indians.¹ Colonel McKenney records the fact that the sawmill was destroyed by fire between the time of his passing up, July 11, 1826, and his return on August 18, of the same year. It is probable that another sawmill was built thereafter. This sawmill was not far from the site of the present Park Hotel.

The American Fur Company in 1835 built a log warehouse on what is now known as Private Land Claim No. 96, at the head of the rapids. Near the same tract of land, on May 17, 1835, the representatives of that company laid the keel of the *John Jacob Astor*, of 112 tons, the first American vessel launched upon Lake Superior.² Her frame timbers and planks were shipped from Charleston, Ohio. She sailed on her first voyage August 15, of the same year, bound for La Pointe. She was navigated until the close of the season of 1842 by Captain Charles C. Stannard; and thereafter by his brother, Benjamin A. Stannard, until she went ashore and was wrecked at Copper Harbor, on September 21, 1844. Rev. John H. Pitezel states that she was a noble brig.³ The *Independence*, the first steamer on Lake Superior, was a stern-wheel propeller built of wood, and was about 150 feet in length. She was hauled over the portage in 1845. Her boiler exploded November 22, 1854, and she sank when a short distance above Sault Ste Marie.⁴

For crossing the portage a strong cradle was built for each vessel, and by means of greased ways and capstans the vessel was slowly moved. In

¹Tour of the Lakes. (1827). McKenney.

²The Mineral Region of Lake Superior. (1846). p. 33, Jacob Houghton, Jr.

³Lights and Shades of Missionary Life. (1860). p. 60.

⁴Marine Review.

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some instances rollers were used. The time required was from a month to three months. Vessels were sometimes run down the rapids. Among them were the *William Brewster*, of 73 tons, in 1842, and the *Uncle Tom*, of 40 tons, in 1846.

The fleet on Lake Superior in 1846 included the steamer *Julia Palmer*, 280 tons; the propeller *Independence*, 280 tons; the schooner *Napoleon*, 180 tons; the *Algonquin*, the *Swallow* and the *Merchant*, about 70 tons each; the *Uncle Tom*, the *Chippewa*, the *Fur Trader* and the *White Fish*, 50 tons,¹ and the schooner *Siscowit*, of 40 tons, which probably derived its name from a sub-species of the trout family, the 'Salvelinus Siscowit.'

Up to and previous to 1848, vessels for lack of sufficient docks, were loaded and unloaded by means of scows and small boats, and to ship and



SAULT STE. MARIE IN 1850; SHOWING THE PORTAGE RAILWAY.

reship merchandise required considerable time, labor and expense. The demands of commerce were so great that in 1848 and 1849 a dock was extended to a length of three hundred feet and to a depth of ten feet, at the head of the rapids in front of claim No. 95, and the cost of the improvements on this claim, including the two warehouses and the dock was four thousand dollars.

About the year 1846 Sheldon McKnight and Lowell W. Tinker, of Detroit, established warehouses below and at the head of the rapids, and in 1847 the Chippewa Portage Company was incorporated.² It was

¹The Mineral Region of Lake Superior, p. 34. (1846). Jacob Houghton, Jr.

²Session Laws of 1847, p. 97.

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expressly provided in the act of incorporation that the road should not interfere with the common carrying place around the falls. This company, in the autumn of 1850, constructed a railroad beginning at McKnight's dock near the northwest corner of the old Fort Brady limits, passing through the middle of Water street until it arrived at the Indian (now Canal) Reserve. Thence it went by the shortest practicable curve until it reached the Portage road at a point a short distance from the old saw mill near the site of the present Park Hotel, and thence it followed the Portage road until it reached the most convenient point of departure to reach McKnight's warehouse, at the head of the Portage. The Chippewa Portage Company was authorized to charge for transportation of freight a price not exceeding five cents for each one hundred pounds, exclusive of storage. In 1848 John T. Whiting was Secretary, Treasurer and General Agent of the company, and the means of transportation was increased to four two-horse wagons and a force of ten men. In 1850 six thousand tons of merchandise, machinery, copper and bloom iron passed over the Portage. Spalding & Bacon were in competition with the Chippewa Portage Company in the forwarding business from 1851 to 1853.



CHAPTER V.

THE FINAL STRUGGLE IN EIGHTEEN HUNDRED AND FIFTY-TWO.



QUATTER sovereignty was the basis of claims to land at Sault Ste. Marie, previous to 1850.

The law establishing a land office for the Upper Peninsula was not passed until 1847 and immediately thereafter the President by executive orders temporarily reserved large tracts of land covering the present site of the city, until the requisite investigation could be made to determine the needs of the government in regard to lands required for Fort

Brady and other public purposes.

Encroachments of citizens on lands enclosed by the military officers were frequent. The inhabitants of the village were isolated for a considerable portion of the year. It is not surprising that many of them were indifferent to a canal.¹

There were others of influence who favored the improvement. Peter B. Barbeau, a gentleman of considerable influence who had been in the Legislature in 1845, and Stephen R. Wood, who in 1841 had been a Representative in the Legislature, and J. Venen Brown, of the Lake Superior Journal, were among those who had broader views.

The line of the proposed canal had been known for years and it conflicted with claims to land and a lock and a canal were translated into a loss of work and wages. The Chippewa Portage Company, which employed laborers in the transfer business, would cease to exist.

Thirty days' toil in hauling a vessel over greased ways across the portage would no longer be required.

These were of course erroneous ideas which in time disappeared, but some time was required. Some time after the canal was opened to business a breach in the embankment on the north side was discovered on August 21, 1857, and Superintendent Calkins was so unsuccessful in obtaining help to make repairs that he was of the opinion there were some individuals who would have rejoiced in the destruction of the entire work. Had it not been for the crew of the U. S. steamer *Michigan*, who volunteered for work, serious consequences to the canal would have resulted. Said the Superintendent in his report for the year 1857: "It is a matter of regret that

¹William Chandler History of St. Mary's Falls Ship Canal, 1877.

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there exists among certain persons a strong feeling, not I believe against any of the parties employed on the canal, but against the work itself, as it is regarded by such persons as prejudicial to their private interests."

The need of the canal became more and more apparent and the Legislature of the State on March 3rd, 1851, asked Congress for an appropriation of money for the construction of the desired work.

When the season of navigation was about to close in November, 1851, there were at Sault Ste. Marie 12,000 barrels of freight for the mines, and it appeared impossible to forward it to its destination. Hay for the Ontonagon Valley, and provisions for Carp River and for ports on Keweenaw Point, were there awaiting transportation. The number of steam boats on Lake Superior was insufficient for the business.¹

There was a Government land office in the Village, and in October and November, 1851, there were in attendance at the public land sales, purchasers from various states. They saw the freight awaiting transportation to the mines, and on the evening of November 8th, 1851, a public meeting was held at the Van Anden House. Judge Ashmun was president of the meeting. A committee was appointed on resolutions, consisting of Knox, of Philadelphia, Thatcher of Boston, Whittlesy, Cash and Hanna of Ontonagon, Farrand of Jackson, and Judge Pratt of Detroit, and Sinclair of Cleveland. John Coburn of Indianapolis, Ind., afterwards General in the Union Army and member of Congress in 1867, and for several terms thereafter, was one of the speakers. Messrs. Thatcher, Pratt and Stevens of Ontonagon and Brooks of Eagle Harbor and Sherman addressed the meeting. Augustus Coburn of Ontonagon was also an active participant in the meeting. He lived to see the canal an accomplished fact, and was lost on the *Sunbeam* on Lake Superior in a great storm in August, 1863, which engulfed the vessel. A petition and memorial were prepared for presentation to Congress urging the granting of aid to the construction of a canal. The *Free Press* of Detroit, Michigan, one of the leading newspapers in the State, on November 18th, 1851, after giving a brief account of the meeting said that it hoped Congress would give heed to the "again repeated demand of our Senators and Representatives for an appropriation to carry on a work of so much moment not only to Michigan, but to the entire Union as this ship canal."

On Monday the 8th day of December, 1851, Senator Felch gave notice of his intention to ask leave to introduce a bill granting to the State of Michigan the right of way and a donation of public lands for the construction of a ship canal around the Falls of St. Mary in said State, and the day following he introduced the bill which was referred to the committee on public lands, of which he was chairman.

¹Buffalo Morning Express of November 15th, 1851.

THE FINAL STRUGGLE

The Empire State threw its great influence into the scale in favor of the canal. On the 23rd day of February, A. D. 1852, Senator George R. Babcock, of Buffalo, representing Erie County, introduced in the Senate of that State, a preamble and joint resolution which were adopted April 6th following. Abijah H. Moss, Representative from the First District of Niagara County, had charge of the resolution in the assembly, and on the 8th of April, 1852, the assembly concurred in a preamble and resolution reciting that Lake Superior was surrounded by a coast of more than fifteen hundred miles in length, whose shores were lined with the most extensive and rich deposits of copper and iron in the world, whose waters afforded fisheries the most valuable in the interior of the country. That the land through which the canal must pass was held by the national government as a military reserve, and beyond the reach of state or private control or enterprise. That the general government, though repeatedly and for many years applied to for an appropriation to build the work, or to allow the same to be done by State or individual effort, had neglected to provide for this great national improvement and requested the Senators and Representatives in Congress from that State to use their best exertions to obtain an appropriation, by the general government. The Legislature of Indiana influenced largely by Mr. John Coburn, by joint resolution approved March 2, 1852¹, instructed its Senators and requested its Representatives to use their influence in procuring the passage of the bill and averred that they were unwilling that the citizens of the United States should be tributary to the British Government for the use of a canal which was in prospect of construction on the Canada shore; and that in common with Wisconsin, Illinois, Michigan, Ohio, Pennsylvania and New York bordering upon the Great Lakes, they felt that this was a work of national importance, a work that would open a market for the products of their soil and a home for emigrants. Legislatures of some other States passed similar resolutions.

The winter of 1851-2 found John Burt, Capt. Eber B. Ward, and several other gentlemen in Washington, laboring for several months for an appropriation. J. Venen Brown, editor of the Lake Superior Journal, was among the number.

On the 28th day of June, 1852, Senator Felch offered informally an amendment which was printed so as to be in the possession of the Senators when the bill came up for consideration. On July 22, 1852, he called up his proposed amendment, providing that the United States should construct the canal as a public work. He stated that the object of the bill was somewhat changed, and the amendment which he proposed was a substitute for it, and he moved as an amendment to strike out all after the enacting clause, and insert in lieu thereof in substance that the Secretary of War

¹Acts of Legislature, 1852, p. 173.

THE SAINT MARY'S CANAL

should be authorized and directed to contract with the lowest bidder or bidders after public notice in the usual manner for letting contracts, for the construction of the canal. Senators Felch and Cass advocated the passage of the bill. Senator Cass said that at the time of the Oregon difficulty with England we feared a rupture, and Mr. Polk's administration was on the point of proposing to Congress, to construct the canal and that from the last paper received from Lake Superior, he had ascertained that a party were then upon the opposite side of the river by order of the Canadian government, with a view to the construction of a canal as they had constructed the Welland canal around the Falls of Niagara. Senator Felch said that there had been two surveys made for the work, one by the authority of the State in 1836, and one by the officers connected with the Topographical Bureau, and that the estimate was for a canal with double locks, and was based upon the length and size of the steamer *Michigan*, which was then the only steamer upon the lakes belonging to the government and was a small iron vessel 167 feet long. He said, however, that since that estimate had been made, the commerce of that country had increased very much.

Senator Dawson (Whig) said that this was one of those internal improvements which he supposed came within the Baltimore platform. He thought it very probable he should vote for the bill upon the desired report being furnished, if the canal would increase our commerce and protect our frontier as a military improvement, thus bringing it within either of the platforms, the Democratic or the Whig.

"Mr. Cass: Which will the gentleman take for himself?

Mr. Dawson: I will take both (laughter). Your platform is certainly much weaker than ours on that point and therefore I cannot fail to take yours by accepting our own."

Senator Felch said that the original proposition before Congress was not to appropriate land for the construction of this work, but to appropriate money. He said it was placed upon the ground of the improvement to that portion of the country in a military point of view. This was one of the grounds. That Ohio and Pennsylvania and several other States had asked Congress to consider the matter. "Sir, there has never been a time in the history of this country, when we have not looked to the northern frontier as a point upon which an attack would be commenced in case of war with Great Britain, nor has there been a time when military men have not had an eye running along the line of the northern boundary of this country as a point where it was necessary to afford every protection and every guard in the case of hostile collision with Great Britain."

Representatives Stuart and James L. Conger of Michigan were active

THE FINAL STRUGGLE

in support of the bill, which was finally passed by the Senate and House in August and was approved by President Fillmore August 26, 1852.

The act as passed was entitled "An Act granting to the State of Michigan the right of way, and a donation of public land for the construction of a ship canal around the Falls of St. Mary's, in said state."

It granted to the State of Michigan the right of locating a canal at the Falls of St. Mary through the public lands known as the military reservation, and four hundred feet of land in width extending along the line of said canal, to be used by the State or under the authority thereof, for the construction and convenience of a canal. 750,000 acres of land were granted to the State to enable it to construct the canal. The proceeds of sales of the lands were to be paid to the United States if the canal was not commenced within three and completed within ten years. The route of the canal was required to be established and filed before the lands could be sold, and it was provided in the act that the canal should be at least one hundred feet wide, with a depth of water twelve feet, and that the locks should be at least two hundred and fifty feet long and sixty feet wide.

Charles T. Harvey, under whose superintendence the canal was constructed, had before the grant was made by Congress examined some lands, and list No. 2 of the lands afterwards selected by him for the company as part compensation for the construction of the canal, included a quarter section in which the famous Calumet and Hecla mine was developed.¹

¹Chandler vs. Calumet & Hecla Mining Co., 36 Fed. Rep., 665.



EVENING AT THE HEAD OF THE CANAL.

CHAPTER VI.

THE CANAL AND LOCKS OF EIGHTEEN HUNDRED AND FIFTY-FIVE.



OBSTACLES were not entirely surmounted when the land grant was obtained. Governor Robert McClelland, upon the passage of the act by Congress, applied to the Secretary of War for an engineer to make the survey, plans and estimates. His application was denied for the reason that no money had been appropriated for that purpose.¹

Captain Augustus Canfield, an accomplished officer of the Topographical Corps of Engineers, learning the situation, volunteered to do the work without pay, and Governor McClelland accepted his services; and aided by Judge Burt, he had in October, 1852, completed the survey, plans and estimates for the construction of the canal, which were presented to the Legislature at the beginning of its session in 1853, and by the first Joint Resolution passed at that session it tendered its thanks to him for his valuable aid.²

Captain Canfield estimated the cost of construction at \$557,739.00.

William A. Burt, from Macomb County, and Heman B. Ely, of Carp River, Marquette County, with others, were energetic in securing the passage by the Legislature of an act accepting the grant,³ and February 5, 1853, the congressional land grant with all the conditions therein expressed was accepted, and the governor was authorized to appoint five commissioners and an engineer, who were required to prepare a plan for the construction of the canal, and were to have the entire supervision of the construction, and were empowered to receive proposals and make all necessary contracts for the construction of the same. The locks in the canal were required by the act to be not less than three hundred and fifty feet long, and not less than seventy feet wide. A description of the lands granted to the State was, when selected, to be marked on the books of the Commissioner of the State Land Office as St. Mary Canal lands. The canal was required to be completed within two years from making the contract.

The act permitted the contractor to assign his contract with the State to any corporation organized according to the laws of the State, or any

¹Message of Gov. McClelland, Joint Documents of 1853.

²Session Laws of 1853, p. 195.

³History of Locks of 1855, by Wm. Chandler. (1877).

THE STATE LOCKS

other State.¹ The words "any other State" were undoubtedly inserted because of the provision of the Constitution of the State of Michigan that corporations should not be created by special act except for municipal purposes.²

This constitutional provision may have been the cause of obtaining a special charter from the State of New York. Probably the lawful expedient of obtaining a general law and organizing a corporation under it for special work had not yet occurred to the authors of the bill.³ By a supplementary act on February 12, 1853, the commissioners were authorized in their discretion, which was exercised, to contract that taxes should be remitted on



WILLIAM A. BURT.

the donated lands to the persons taking the contract for construction of the canal, for a period not exceeding five years from the time fixed for the completion of the canal.⁴

The contract for the construction of the canal according to the requirements of the act of Congress and the Legislature was, on April 5, 1853, entered into by the Commissioners of the State with Joseph P. Fairbanks, of St. Johnsbury, Vermont; John W. Brooks, of Detroit, Michigan; Erastus Corning, of Albany, New York; August Belmont, H. Dwight, Jr., and

¹Session Laws of 1853, p. 51.

²Article XV, Sec. 1.

³Nelson vs. McArthur, 38 Mich., 204.

⁴Session Laws, 1853, p. 86.

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Thomas Dwyer, as principals, and Franklin Moore, George F. Porter, John Owen, James F. Joy and Henry P. Baldwin as sureties.¹

The 750,000 acres of land granted by Congress was the consideration which the contractors or their assignee were to receive. Several of these last mentioned gentlemen were constituted a body corporate by the Legislature of the State of New York on April 12, 1853, under the name of the Saint Mary's Falls Ship Canal Company, to which the contract was assigned, and on June 4, 1853, ground was broken by Charles T. Harvey, who was the superintendent of construction and engineer of the company and who wheeled the first barrow of earth from the cut.² Part of the construction of this canal was under the inspection of Captain Augustus Canfield, who represented the State until his death in 1854. He had for his assistant Major Glenn, of Niles, Michigan. John T. Clark also acted in behalf of the State for a time, as Chief Engineer of the canal.

The directors of the company in their report of September, 1858, say that when the excavation of the canal was nearly completed according to contract, it was discovered that the waters of Lake Superior were subject to a rise and fall of several feet annually in addition to the changes occasioned by storms and wind upon the lake during the season of navigation. This necessitated the deepening of the canal one foot, which was nearly all rock work, and, with other extra work, caused an expense of over \$100,000.

The working force of men at one time during the construction of the canal was sixteen hundred men, and the total days' labor was 320,595. Powder, shipped from the east, was used to the extent of 3,157 kegs.³

Cholera in 1854 attacked many of the people of the village and workmen on the canal, and the working force had to be constantly renewed from eastern cities, so that a continued importation of men was kept up for months.⁴

During the winter of 1853-4 some members of the Ship Canal Company became alarmed at the difficulties which confronted the company, and John T. Whiting in that winter made a journey from Sault Ste. Marie to Saginaw on foot, and from thence he went to Syracuse, Albany and St. Johnsbury, Vermont, visiting members of the company, and succeeded in encouraging them to proceed with the work.⁵

Lands were selected by Mr. Charles T. Harvey, the agent of the company, during the progress of the work. The quarter section upon which the Calumet and Hecla mine is situated was in the second list of

¹History of St. Mary's Falls Ship Canal. Wm. Chandler. 1877.

²Marine Review, Aug. 4, 1904. Charles T. Harvey, C. E. "The Pioneer Sault Canal."

³Report of Directors of St. Mary's Falls Ship Canal Co., Sept., 1858.

⁴Id.

⁵Scrap Book of Hon. H. P. Davock.

THE STATE LOCKS

lands selected, but the company realized only about \$60,000 on the sale of the same.¹

May 24, 1855, certificates of the completion of the canal and locks were filed. A weakness in the embankment on the north side of the canal



CHARLES T. HARVEY.

required some work, yet in a little more than two years from the time ground was broken and on the 18th day of June, A. D. 1855, the first boat, the steamer *Illinois*, Capt. Jack Wilson, west bound, was locked through,²

¹Geological Survey of Michigan, 1869-1873, Vol. 1, p. 24.

²History of St. Mary's Falls Ship Canal. William Chandler. 1877.

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and on the same day the steamer Baltimore, Capt. John Reed, passed through the lock, bound eastward. The brig Freeman, bound up, was the same day the first sail vessel to pass through the lock.¹ It has been decided that the canal is in no sense a part of the river, but is an independent water way like a turnpike.²

The report of the directors of the St. Mary's Falls Ship Canal Company to the stockholders, in September, 1858, still existing in pamphlet form, contains a balance sheet showing the cost of constructing the canal, including the selection of lands, as follows:

Excavation and Filling.....	\$403,362.20	
Lock Masonry	247,999.11	
Piers	67,791.64	
Lock Gates	45,786.20	
Lock Bottoms and Foundations.....	19,515.00	
Slope Wall Masonry.....	16,985.82	
Caisson Gates	8,000.00	
Buildings	3,600.00	
Salaries (Canal)	33,522.51	
Incidental Expenses	15,943.31	
Company Engineering	7,739.58	
State Engineers	19,982.78	
Special Service and Legal Expenses..	15,710.88	
Traveling Expenses	2,241.96	
Agent's House	2,741.94	
		<hr/>
		\$910,925.93
Bills Receivable		2,566.22
Land Selections, Lower Peninsula...	77,276.80	
Land Selections, Upper Peninsula....	9,033.51	
		<hr/>
		86,310.31
		<hr/>
Total Cost of the Canal.....		\$999,802.46

The canal and locks have ever received the highest praise. Governor Andrew Parsons in his message of January 3, 1855, said:

"The cost of the canal will be nearly double the original estimate; and the work is pronounced by good judges to be one of the best of the kind in the world. The contractors are entitled to much credit for the manner in which they have constructed and desired to construct the work and the great energy with which they have prosecuted it."³

Governor Kinsley S. Bingham in his inaugural message of January 4, 1855, said:

¹Capt. J. H. Andrews in *Marine Review*, June 16, 1904.

²Justice Campbell, in *Ryan vs. Brown*, 18 Mich., 211 (A. D. 1869).

³Joint Documents, 1855, p. 20.

THE STATE LOCKS

"This noble work of internal improvement, rivaling in its magnitude and the fitness and excellence of its structure the most celebrated works of a similar character in the Old World, has been prosecuted with an energy highly creditable to the able direction under which it has been constructed. A less diligent and energetic management would have been intimidated by the serious obstacles which have interposed to impede the progress of the work; as it is, it will undoubtedly be completed within the time specified by the contract for its construction.

* * * * *

It will also become a great national highway, connecting our richly endowed state more intimately than at first thought would be obvious, with the ports and cities of the eastern hemisphere."¹

Alfred Noble, writing in 1877, added his tribute:

"In view of the large amount of capital required, no return being possible until after the sale of the lands, the isolation of the locality, inaccessible during five months of the year, and the severity of the climate, which greatly retarded work during winter, the rapid construction of the canal was a remarkable feat.

"This was about the first ship canal made in the United States. The locks and gates were the largest made in the country up to that time. The depth of water was the greatest that had been called for in any similar American work. The engineering features were thus without precedent in American practice, but they were well worked out, and the canal has proved to be a very successful one.

"As originally built, the canal was 5,400 feet long, had a width of 100 feet at the waterline, with slopes of $\frac{1}{2}$ to 1, paved where the cutting was not through rock, and a depth of 12 feet at mean stage. The locks located near the foot of the canal were two in number, combined, each 350 feet in length, 70 feet in width, with a lift of 9 feet. The walls were of limestone, obtained from Marblehead, Ohio, and Malden, Canada; the backing from Drummond's Island, near the mouth of the Saint Mary's River. The face-stone were laid in regular courses, with irregular bond had bush-hammered faces with $1\frac{1}{2}$ inch margin draft, and joints had beds cut to $\frac{3}{4}$ inch."²

General O. M. Poe, several years ago, gave expression to his opinion of this work:

"On the whole, however, the canal was a remarkable work for its time and purpose. The construction of the locks especially bore evidence of a master's hand in their design and execution, and it is no reflection upon the ability of the engineer in charge that experience developed the objectionable features enumerated above. These locks are now being torn out to

¹Joint Documents, 1855, p. 24.

²Ann. Report, Chief of Engrs., 1877, Appendix C. C.

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make room for a new one, and every step in their destruction reveals the excellence of the workmanship, the honest character of the materials employed, and the faithful compliance with the conditions of the contract under which they were built, not merely in its letter but in its spirit. All honor, then, to every man connected with their design and construction. They were long in advance of their day, and if commerce had not outgrown their dimensions they would have done good service for a century.

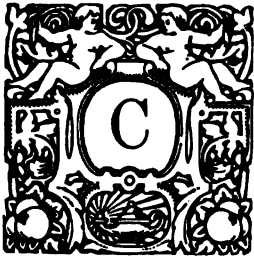
"I must confess to a feeling of great regret that it has become necessary to destroy these first locks. Inanimate though they were, they seemed to appeal to every sentiment of respect. They had never failed to respond to any demand within their capacity; they had contributed, in a higher degree than any other one factor, to the development of the country to the westward of them, and having done such good work are now to be obliterated in the interest of that very commerce they did so much to establish. The man who, knowing their history, can see them go, without compunction, is made of other stuff than I am, and, if an engineer, has no genuine love for his profession nor pride in the achievement of those who successfully apply its teachings to the best examples of his art."¹

¹Marine Review, August 4, 1904.



CHAPTER VII.

IMPROVEMENT OF RIVER ST. MARY—POCKET VETO OF FIRST BILL BY THE PRESIDENT—STRUGGLE RE- NEWED AND BILL PASSED OVER VETO.



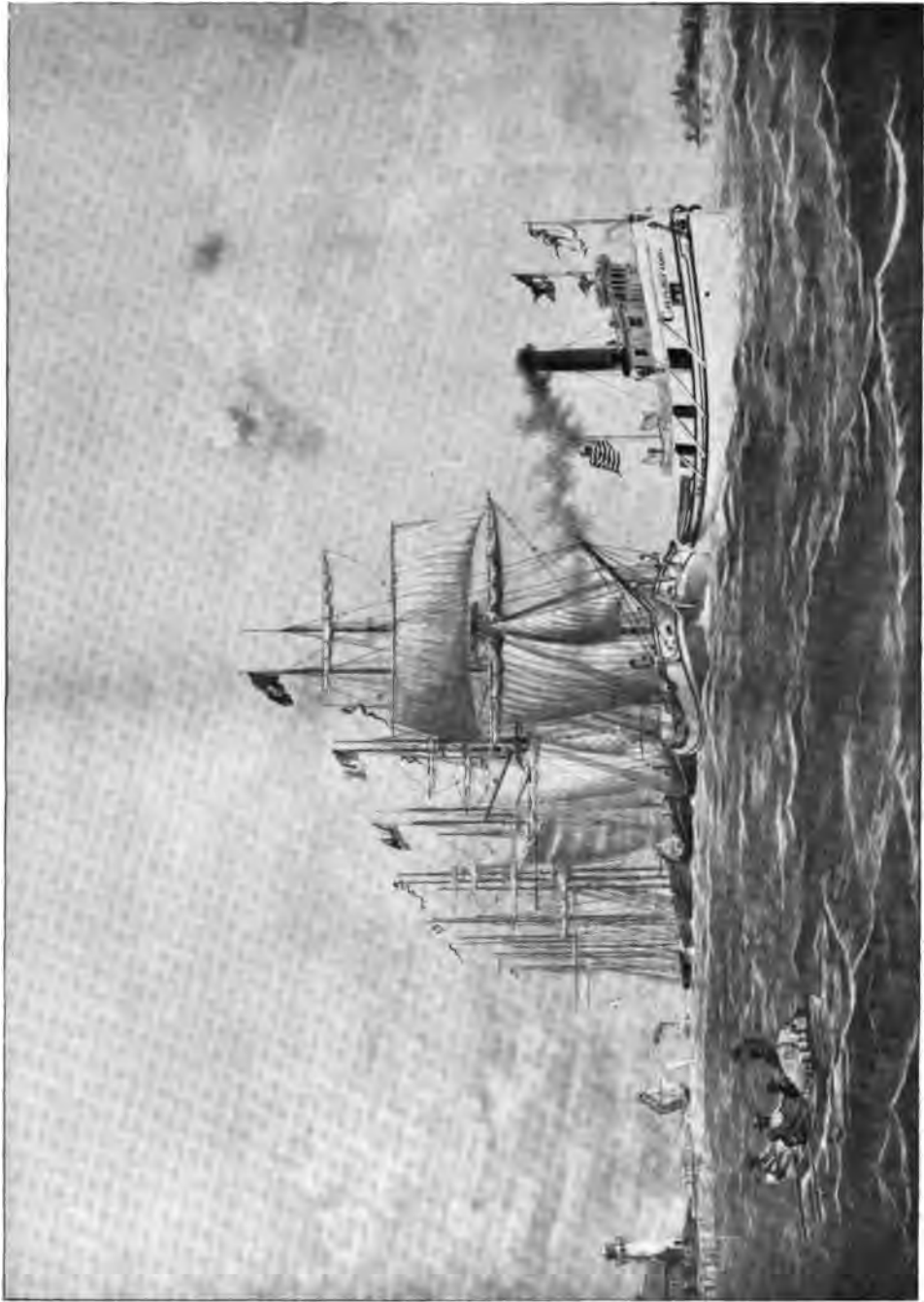
CONGRESS, in the grant of August 26, 1852, required that the canal should have a depth of twelve feet. The channels of the river were narrow, crooked, and had but eleven feet of water clear of rocks in some places, and vessels were frequently detained in the river from six to fourteen days.¹ Vessels having a capacity of 500 tons drew, when fully freighted, twelve to twelve and one-half feet. Captain Eber B. Ward, owner of several large vessels, was in 1853 opposed to locks 350 by 70 feet in size, because the character of the river would, in his opinion, forever deter the largest class of steamers from navigating its waters.²

Senator Cass, before 1850, had sailed over the waters of the St. Mary several times and its channels were familiar to him. He knew the river would have to be deepened, and within six months after the passage of the land grant act, had succeeded in inserting in the bill making appropriation for civil and diplomatic expenses a provision whereby Congress required a survey to be made of so much as might be necessary of the water communication between Lake Huron and Sault Ste. Marie, to ascertain what part thereof required to be deepened, and that plans and estimates of the nature and expense of the work should be laid before Congress at its next session. This requirement of Congress was soon brought to the notice of Captain J. N. Macomb, of the Topographical Engineers, who ordered a party to the St. Mary's river in charge of Captain E. P. Scammon, assisted by Lieutenant Mendell, and three civil assistants. A map of East Neebish Rapids and of the flats of Lake George was prepared. At the north end of the flats on the east side there were three old cribs remaining which once formed part of a wharf constructed many years ago by the Hudson Bay and American Fur Companies. These cribs were obstacles to navigation.

The report of Captain Macomb, communicated to the Senate in the report of Jefferson Davis, Secretary of War, showed that the improvement

¹Report, Supt. John Burt for 1856.

²Charles T. Harvey, C. E., *Marine Review*, Aug. 4, 1904.



TUG CHAMPION TOWING A FLEET OF SCHOONERS THROUGH THE RIVERS. THE POPULAR METHOD OF ORE TRANSPORTATION IN THE 60'S.

THE IMPROVEMENT OF THE RIVER

by the west channel, through Lake George and over the East Neebish Rapids, would cost \$160,000. Would the money be forthcoming?

It had not been difficult to secure the approval of President Fillmore of the land grant. He was a Whig, and the Whigs and Free Soilers believed that Congress had the power to remove obstructions from navigable rivers whenever such improvements were of a national character and necessary for the common defense, and for the protection and facility of commerce among the states. The Whigs, in 1852, however, were successful in but four states, Massachusetts, Vermont, Kentucky and Tennessee. Out of 296 electoral votes Pierce received 254 and General Scott only 42.¹

General Pierce was elected upon a platform which reaffirmed the proposition declared at the Baltimore convention of 1840—that the Constitution did not confer upon the general government the power to commence and carry on a general system of internal improvements. Considering the popular vote, however, Pierce had an absolute majority of less than 60,000 votes out of a total of 3,000,000.

Due consideration must also be given to the fact that the slavery question, including the repeal of the Missouri Compromise, was uppermost in the minds of the people.

A contractor, hoping for the work of dredging rock in the River St. Mary at ten dollars per cubic yard, would easily have discerned something ominous in the first annual message of President Pierce of December 5, 1853, which suggested that if the policy were once settled against appropriations by the general government for local improvements for the benefit of commerce, localities requiring expenditures would raise the necessary fund. The President also said it would be proper to refer back to the fixed standard which the fathers had left us and make a stern effort to conform to it.²

The fixed standard of the fathers referred to was probably that set forth in President Madison's veto message of an internal improvement bill in 1817³ and President Monroe's veto of the Cumberland Road bill in 1822⁴ and President Jackson's veto of the Maysville Road bill in 1830,⁵ because these messages and the action of Congress upon them may be considered as embracing all the constitutional reasoning upon the question of internal improvements.⁶

On December 6, 1854, Senator Cass introduced a bill which, as finally amended, provided for an appropriation of \$40,000 towards deepening the St. Mary's River by the west channel through Lake George and the St.

¹Blaine: *Twenty Years*, Vol. I, pp. 105-109.

²Richardson's *Messages*, Vol. V, p. 219.

³Richardson's *Messages*, Vol. I, p. 585.

⁴Richardson's *Messages*, Vol. II, p. 142.

⁵Richardson's *Messages*, Vol. II, p. 483.

⁶Benton's *Thirty Years' View*, 1820 to 1850, Vol. I, p. 167.

THE SAINT MARY'S CANAL

Clair Flats.¹ The bill was referred to the committee on commerce, of which Senator Charles E. Stuart, of Michigan, was a member. The bill was not brought up by Senator Cass for immediate consideration in the Senate, because President Pierce, in his second annual message, on December 5th, 1854, had intimated that he would reserve the subject of internal improvements for a special message.² This special message was communicated to Congress on December 30th, 1854.³ In it he again expressed views strongly in opposition to internal improvements, admitting, however, that the claim of a particular channel required by the exigencies of the naval service of the country might be constitutionally comprehended in the power to declare war and to provide and maintain a navy. The Legislature of the Empire State had different views. Representative William W. Weed, of the first district of Erie County, New York, on January 5, 1855, introduced in the Assembly a preamble and concurrent resolution which was adopted the same day and shortly afterwards by the Senate, which asserted the power of the general government in regard to the improvement of the St. Clair Flats and instructed the Senators in Congress from that state and requested its Representatives to give their votes and use their influence in favor of the passage of an act authorizing and directing such an improvement to be made in the channel of the St. Clair Flats as would render the navigation safe and easy to all vessels engaged in the commerce of the Great Lakes.⁴

Within a few days after the receipt of the message of President Pierce, of December 30, 1854, the bill of Senator Cass was called up in the Senate, and Senator William H. Seward, of New York, advocated its passage, remarking that it assumed new importance from the circumstance that we had now obtained a treaty with Great Britain for the free navigation of the St. Lawrence.⁵ This bill was one of the steps necessary to complete the inland navigation from the head of the lakes to the Atlantic Ocean.

The bill passed the Senate in the latter part of February, 1855. Representative Solomon G. Haven, of New York, had in January introduced a bill to provide for the navigation of the St. Clair river, and he took charge of the Senate bill, which was not passed by the House until March 3, 1855, the last day of the short session of the 33rd Congress. The bill suffered what is called a "pocket veto," or, in other words, Congress adjourned before the expiration of the ten days which the Constitution allows the President to consider bills.⁶

Many appropriation bills had been passed for the benefit of rivers and

¹Globe, 2nd Sess., 33rd Cong., p. 15.

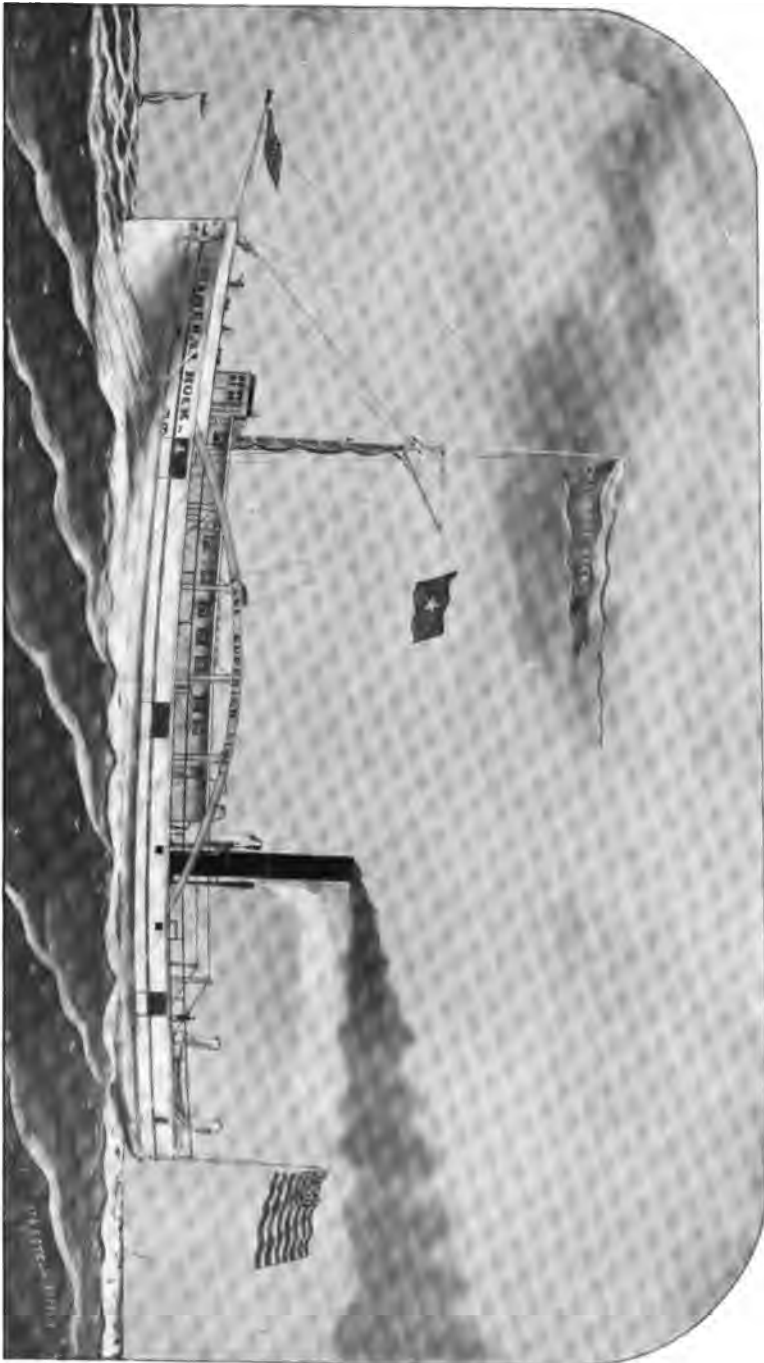
²Richardson's Messages, Vol. V, p. 292.

³Richardson's Messages, Vol. V, p. 261.

⁴Laws of 1855, p. 1113, 78th Sess., New York Legislature.

⁵See chapter on International Relations, page 159.

⁶Art. I, Sec. 7, Cl. 2.



PROPELLER MINERAL ROCK. A TYPE OF 1856.

THE SAINT MARY'S CANAL

harbors at both sessions of the thirty-third Congress. With the exception of two, they had all been vetoed. President Pierce, in his message of December 30, 1854, relative to internal improvements, had suggested to Congress as a measure of precaution to make appropriation for every work in a separate bill, so that each one could stand on its own independent merits, and, if it should pass, that it should do so under circumstances of legislative scrutiny entitling it to be regarded as of general interest and a proper charge on the treasury of the Union.¹ Undoubtedly out of deference to the wishes of the President, Senator Cass, on the 4th day of February, 1856, introduced separate bills, one for the improvement of the St. Clair Flats, and the other for the improvement of the St. Mary's river. The latter appropriated \$100,000 towards deepening the St. Mary's river by the west channel through Lake George, according to the estimate of Capt. Macomb reported by the Secretary of War, Jefferson Davis, in 1855.

Senator John Slidell, of Louisiana, introduced, on February 4th, 1856,² a bill to remove obstructions in the mouth of the Mississippi river at the Southwest Pass and Pass a L'Outre. This bill and the one in regard to St. Mary's river, introduced the same day, were afterwards called "twins."³

On March 17, 1856, the Senate considered, as in committee of the whole, the bill introduced by Senator Cass. Senator Crittenden, of Kentucky, remarked that there were some quite important navigable streams a good deal further south and west than Michigan, such as the Ohio and Mississippi, and that such bills as the one relative to St. Mary's river had generally been held back in order that they might accompany appropriations for other and more general and important objects.

Mr. Seward stated that the bills on the calendar were for the lakes of the Union and for the rivers north and south, east and west, in Kentucky, Massachusetts and Maine. Mr. Seward, continuing, said those bills would all follow in their order, and if the Honorable Senator would give his vote for the bill he would presently have the pleasure of seeing votes given for all the bills which he desired to have passed.

Senator Butler, of South Carolina, desired to know from gentlemen who were so averse to a "general system of internal improvements" how they could reconcile it to their constitutional doctrine, to take up by piecemeal and make these different local appropriations so that they should have preference over a general system of appropriations for internal improvement. "If a general system were proposed, I suppose the first who would oppose it would be the Honorable Senator from Michigan, because that

¹Richardson's Messages, Vol. V, p. 270.

²Cong. Globe, 1st Sess., 34th Cong., Pt. I, p. 350.

³It is a curious coincidence that in 1892 the twenty-one foot channel project was combined with the Galveston, Texas, harbor project, and both were put through Congress.—
EDITOR.

THE IMPROVEMENT OF THE RIVER

would be contrary to what is called the Baltimore platform. (Laughter.) I have heard various attempts made to draw some indicative line by which gentlemen could be reconciled to one appropriation and opposed to another. Some say that if we have a river running through three states it assumes such a dignity that it may very well be brought within the cognizance of federal legislation.

Mr. Cass: Your former colleague (Calhoun) said that.

Mr. Butler: Did you take advantage of it?

Mr. Cass: Charge it to South Carolina. Mr. Calhoun maintained that doctrine.

Mr. Butler: Well, if Mr. Calhoun maintained that, I didn't. You go for one state, but not for another.

Mr. Cass: I go for all.

Mr. Butler: Then you quit the platform. (Laughter.)

Mr. Cass: No, I stick to the platform. (Laughter.)

Mr. Butler: I cannot see how that platform can stand and this appropriation for St. Mary's river stand also. Does the St. Mary's river run through more than one state?

Mr. Cass: It runs through Canada.¹ (Laughter.)

Mr. Butler: Well, that may be called foreign relations. (Laughter.) If you say this is a war measure, I will be reconciled to it. I can be reconciled to it on the broad ground it is a measure providing for war.

Mr. Cass: That is one of its uses.

Mr. Butler: Very well, that may distinguish it." (Laughter.)

The bill was thereupon passed.²

Representative George W. Peck, of Michigan, had charge of the bill in the House, and said that it made an appropriation for work that was provided for by the last Congress in the St. Clair Flats bill, which had not, for some reason or other unknown to him, received the sanction of the President.

The bill passed the House May 12, 1856.

President Pierce, on May 19th, vetoed the bill for removal of obstructions to navigation at the Southwest Pass and the St. Clair Flats bill,³ and exactly ten days after the passage of the bill by the House to deepen the channel over the Flats of St. Mary's river President Pierce returned it with his veto, which was short and explicit.

"The appropriation proposed by this bill is not, in my judgment, a necessary means for the execution of any of the expressly granted powers of the Federal Government. The work contemplated belongs to a general

¹Note: Just below the East Neebish, which are the rapids at the foot of Lake George, one channel of the river passes to the northward of St. Joseph's Island into the north channel and thence into Georgian Bay, Canada.

²Cong. Globe, 1st Sess., 34th Cong., p. 665.

³Richardson's Messages, Vol. V, p. 386.

THE SAINT MARY'S CANAL

class of improvements embracing roads, rivers, and canals, designed to afford additional facilities for intercourse and for the transit of commerce, and no reason has been suggested to my mind for excepting it from the objections which apply to appropriations by the General Government for deepening the channels of rivers wherever shoals or other obstacles impede their navigation, and thus obstruct communication and impose restraints upon commerce within the states or between the states or territories of the Union. I therefore submit it to the reconsideration of Congress on account of the same objections which have been presented in my previous communications on the subject of internal improvements."¹

The veto message of President Pierce concerning the Southwest Pass was sent to the Senate on May 19th, 1856.² Able men combatted the views of the President. Senator Judah P. Benjamin, of Louisiana, afterwards Attorney-General in the first Confederate cabinet, and later prominent at the English bar, on May 21, 1856, made a vigorous and brilliant attack on the message of the President.³ Senator Mason, of Virginia, Senator Toombs, of Georgia; Senator Butler, of South Carolina, and a few other Senators came to the support of the President. Senator John Slidell, of Louisiana, spoke in favor of the bill,⁴ and argued that it was constitutional. The question which he argued was not as serious as the question of procedure under international law of which he was the cause while on the Trent in Bahama channel on November 8, 1861.⁵ The "twin" bills for the Mississippi and St. Mary's river involved the same constitutional questions, and had been marked about the same time by similar executive disapprobation.

The venerable Cass was nearly seventy-four years of age when, on July 7, 1856, he delivered in the Senate an argument showing no signs of impaired mental vigor. He was familiar with the two rivers. He had traveled the waters of each, and had descended the Mississippi in a birch bark canoe two thousand miles when there was hardly a white man above St. Louis. He spoke upon the Mississippi river bill, but arguments upon one bill, as he remarked, were equally applicable to the other, excepting local differences. In a speech occupying several pages of the Congressional Globe he gave a luminous exposition of the power of Congress under the Constitution to make the desired appropriation.⁶ Closing his argument, he spoke of the canal: "It is just one year since it was opened. I was among those who had the good fortune to be on board the first steamer

¹Richardson's Messages, Vol. V, pp. 386-387.

²Richardson's Messages, Vol. V, p. 386.

³Globe, 1st Sess., 34th Cong., Pt. 2, p. 1270.

⁴Globe, 1st Sess., 34th Cong., Pt. 2, p. 1542.

⁵The Civil War and the Constitution, Burgess, Vol. I, p. 273.

⁶Globe, Appendix, 34th Cong., 1st Sess., pp. 740-749.

THE IMPROVEMENT OF THE RIVER

that passed through it, and a most interesting event it was for me to enter Lake Superior by means of this triumph of human skill and industry and to sail over its broad expanse by means of another. I had traversed its mighty waters years gone by in that most fragile of all vehicles, an Indian birch canoe, exposed to its alternations of storm and of calm. Everything reposed in the solitary magnificence of nature, not a keel plowed its surface, not a civilized man had fixed his residence upon its borders; a few Indians and a few animals supplying their wants were all the signs of life the traveler encountered. But all this is changed, a new chapter has opened in the history of that country. The white man is there with his energy, his industry and his ceaseless activity, and he is opening farms and building towns and villages, converting the wilderness into the abode of civilization and Christianity with churches and school houses, and whatever else is necessary to human improvement, and penetrating the bowels of the earth and laying bare its hidden treasures. The country upon Lake Superior is one of the richest mineral regions in the world. Its prodigious resources of copper and of iron of the most superior quality are only beginning to be known, but they are already assuming a national importance. And yet it seems but the other day since an insulated mass of copper upon the Ontonagon, which I sought in vain to find, but which had become known through the reports of Indians, to whom it was a Manitou, and which is now in the open space between the buildings of the War and Naval Departments, was the principal evidence we had of the treasures hidden in the earth. Every day they are more and more developed, and the most sanguine expectation seems destined to be overcome by the result."

The 7th day of July, 1856, on motion of Senator Cass, the Senate proceeded to the reconsideration of the bill making improvements for deepening the channel over the flats of the St. Mary's river, which had been returned by the President with his objections, and the question being submitted, "Shall the bill pass, the President's objections to the contrary notwithstanding?" was answered by yeas 28, and nays 10.¹

The bill was at once sent to the House, and on the next day, July 8, 1856, it agreed to the passage of the bill by a vote of 136 yeas and 54 nays,² and as more than two-thirds of the Senate and House voted in favor thereof, the appropriation was made.

¹Cong. Globe, 1st Sess., 34th Cong., p. 1550.

²Cong. Globe, 1st Sess., 34th Cong., Pt. 2, p. 1565.

CHAPTER VIII.

THE WEITZEL LOCK OF EIGHTEEN HUNDRED AND EIGHTY-ONE.



HE net registered tonnage passing through the canal had increased from 106,296 tons in 1855 to 571,438 tons in 1864, and Superintendent G. W. Brown in that year recommended the construction of another lock, and in 1867 and 1868 Superintendent Guy H. Carleton reported that it was necessary to deepen and enlarge the canal. The tonnage had in 1870 increased to 690,826 tons. March 11, 1870, Gen. A. A. Humphreys, Chief of Engineers, submitted a report to the Secretary of War calling attention to the reports of Brevet Major-General Cram of 1867 and 1869, in which he had recommended an additional lock and the deepening of the canal.

General O. M. Poe, on May 13, 1870, relieved the officer in charge of the works of improvement of the River St. Marys, and after the appropriation by Congress in July, 1870, of the sum of \$150,000, he submitted a project in August which, as amended, embraced a new lock, entrances thereto and the widening and deepening of the canal. The lower entrance was to be formed by excavating out to deep water and revetting the channel with pier work.¹ For this purpose there was required the water front of certain private land claims owned by individuals. The price asked therefor was higher than General Poe was willing the Government should pay, and in January, 1871, he suggested to Governor Baldwin the law of the State for the condemnation of property for Government Light Houses, as a precedent for a law for the condemnation of property for uses of the canal. The suggestion was probably due to his experience when he was Secretary of the Light House Board and interested in obtaining a tract of land in the State of California known as "Lime Point" as a site for a light house. A law of the State of California said to have been drawn by Gen. Poe was passed in 1859 for the taking of lands for those purposes and authorized the United States to proceed in a Court of the State to condemn land for the United States, and this law had been held constitutional.²

The Legislature of Michigan, by the law of April 12, 1871, provided for

¹Sketch by Alfred Noble, Assistant Engineer. Report of Chief of Engineers of 1877.

²Gilmer vs. Lime Point, 18 Cal., 229, A. D. 1861.

THE WEITZEL LOCK

the appointment of commissioners to procure lands for the enlargement of the canal, who were given power to fix the value and to condemn the same to the use of the State. This law soon became ineffectual by reason of the decision of the Supreme Court of the State¹ holding unconstitutional the Light House Act upon which the act of April, 1871, was based, an opinion which differed from the California case, of which Gen. Poe had knowledge.

Said Justice Cooley:

"Under the division of powers between the United States and the individual states, each has its sphere of sovereignty within which it moves



MARQUETTE HARBOR IN 1863, SHOWING THE TYPE OF ORE CARRIER PREVAILING AT THAT TIME.

and operates without let or hindrance from the other, and within that sphere it employs the eminent domain wherever needful to the complete and effectual exercise of its powers, and with as little occasion or necessity for the permission or assistance of the other as if the two governments were wholly foreign to each other, instead of being constructed as parts of one harmonious system. For the one to enter the sphere of the other and employ its officers and machinery in the exercise of its eminent domain for the benefit of the other would not only be as much without warrant, but

¹Trombley vs. Humphrey, 23 Mich., 471 (Oct., 1871).

THE SAINT MARY'S CANAL

also as much a work of supererogation as for the United States to exercise the like authority and employ the like agencies in a foreign country in order to appropriate individual property therein for the benefit of the government of such foreign country, which, as a sovereignty, had powers of its own fully adequate to the purpose."

The difficulty which confronted the Engineer officers was that there



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GEN. GODFREY WEITZEL.

was no State or United States statute under which lands could be condemned. The Federal power of eminent domain had lain dormant from the beginning of the Government. The Michigan Court held that that circumstance was of no importance, that the power existed, and in this opinion it was afterwards confirmed by the highest tribunal in the land.¹ General Poe, learning of the lack of power of the State, suggested the enactment of a law by Congress confirming the right and power to seize and condemn the lands needed.

¹Kohl United States, 91 U. S., 367 (1876).

THE WEITZEL LOCK

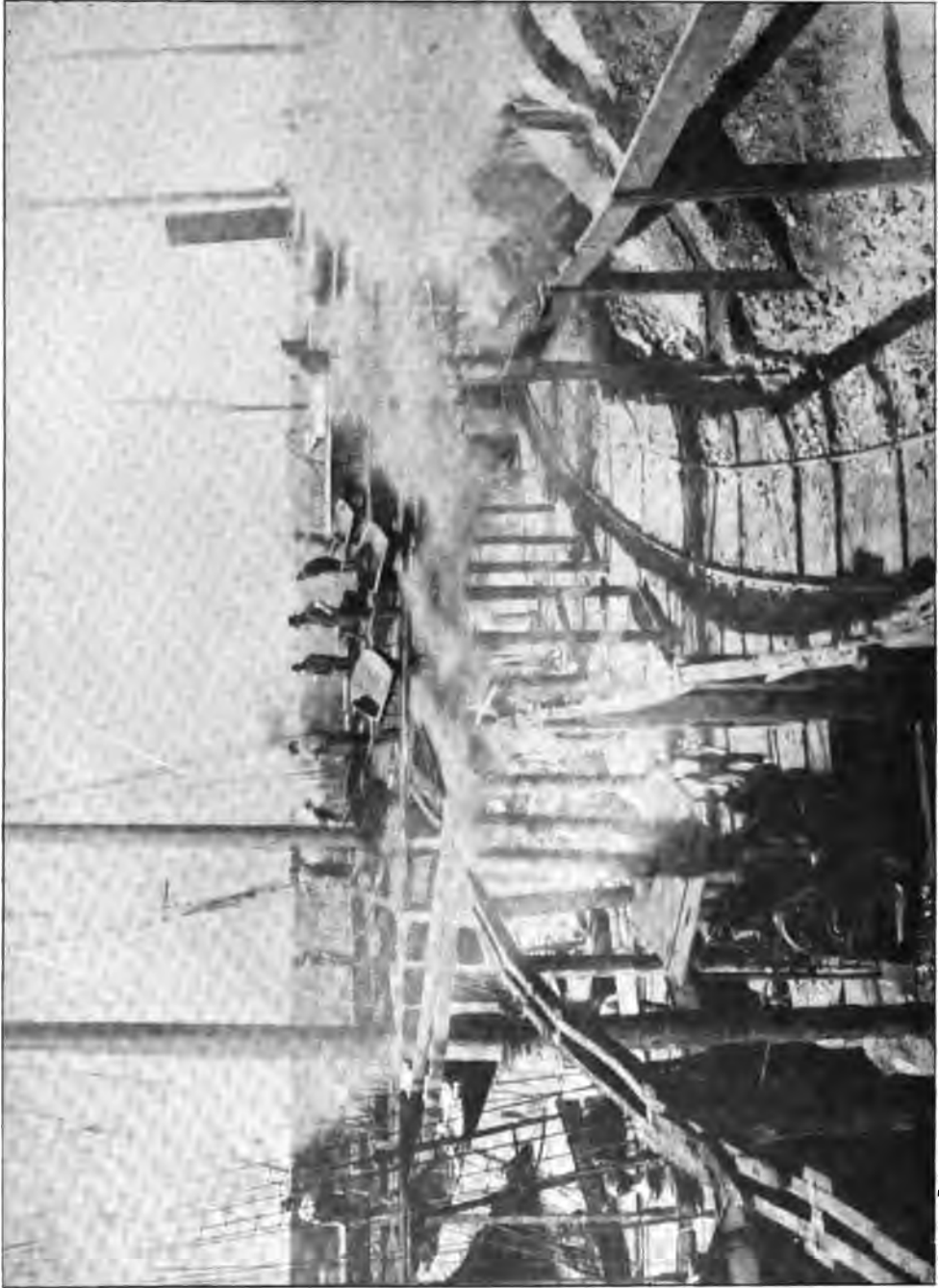
But General Humphreys, Chief of Engineers, directed otherwise, and the District Attorney of the United States for the Eastern District of Michigan was authorized to negotiate for the purchase of the required lands. In September, 1872, Henry H. Swan, then Assistant United States District Attorney,¹ visited Sault Ste. Marie, and was successful in procuring the necessary deeds to the water front of certain private land claims lying east of the proposed improvement. The State Board of Control finally purchased the required portion of claim No. 68, and the Governor of the State of Michigan was in 1875 authorized to convey Private Land claims 68 and 76 to the United States for the improvement of the canal.² General Poe was in charge of the work of enlargement until May 1, 1873, when he was relieved by General Godfrey Weitzel.

The first contract for the improvement of the canal had been let October 20, 1870, and the first stone of the lock was laid July 25th, 1876. Public exercises were held when the laying of the first stone took place. The meeting was presided over by Hon. Peter B. Barbeau and several vice-presidents. Among others Louis P. Trempe, Guy H. Carleton, Thomas Ryan, Dr. Oren B. Lyon. Remarks were made by General Weitzel, Harlow P. Davock, C. E. Assistant Engineer, George W. Brown and Henry W. Seymour. General Weitzel said in substance:

"We have assembled here today to celebrate in a quiet and informal manner an event which all of us who are responsible for this work, and I am sure all of those who are interested in it, have looked forward to with anxiety and impatience. No one regrets more than I do that we could not have celebrated this event a year ago. The delay was not caused by any fault of myself or of my assistants. It was caused by the laws, which we as members of the executive branch of the government are bound to obey to the letter. We are here to witness the setting of the first stone of the new locks. The beautiful custom of celebrating the setting of the first stone of buildings which are designed merely for society and local uses obtains throughout the civilized world, and where, however, this event happens on a work of such great importance as this it is the custom in other countries, and in our own, where it is located near the more populous district to celebrate the occasion with great pomp and pageantry, and in the presence of the highest dignitaries of the land; but here in this remote and sparsely settled portion of the country this was impossible. But by our presence here today we show to those who would have been here if they could, and to all those interested, that we fully and deeply appreciate the magnitude of the occasion, although we can only show it in a modest and informal manner. I said this is a great work; it is truly so;

¹Now District Judge of the Eastern District of Michigan.

²Public Acts of 1875, p. 20.



THE LITTLE DOCK ENGINE WAS INSTALLED ON THE NYRANO DOCK IN CLEVELAND, 1867. THIS METHOD OF UNLOADING ORE
CONTINUED UNTIL 1880.

T H E W E I T Z E L L O C K

it is more than a local, a state, or even a national work; it is international in its character. The facilities for bringing out of the vast Superior region its varied valuable and immense riches and scattering them in one form and another not only in our own country, but in many other parts of the earth, will be increased and the cost diminished. In this way it affects not only the people of our own country, but the people of other nations. Let us, then, cheerfully devote a few minutes of our time today to do honor to this occasion, and let us all hope that we may soon celebrate the next and greatest event, that is, the day on which the first vessel or tow shall be locked through these magnificent locks."¹

After the close of navigation on November 15th, 1880, a coffer dam 1,700 feet long was completed across the head of the canal, and the canal was drained and the old curved pier on the south side removed, and what is known as the new south pier was extended across the entire front of Private Land Claim No. 3, but not on the fast land, and the canal was widened and deepened to an uniform depth of sixteen feet of water, and in the spring of 1881 that part of the dam between the canal piers was dredged out.

The chamber of the Weitzel lock is 515 feet long between hollow quoins, 80 feet wide, narrowed to 60 feet at the gates; the depth is 39½ feet; its capacity is 1,500,000 cubic feet. The lift of the lock is eighteen feet; the depth of the miter sills is seventeen feet.

The cut stone of the walls of the lock was obtained from Marblehead, Ohio, and Kelley's Island; the backing from Drummond's Island, which is in St. Mary's river, near Lake Huron, in Michigan. Messrs. Boyle & Roach, of Cincinnati, Ohio, were the principal contractors in the construction of this lock. Their names appear on the tablet built in the masonry, and these are the only names carved in these great works.

The lock was opened to navigation September 1, 1881,² and the first lockage took place on September 4th, when the steamer City of Cleveland passed through.³

Approximately the cost of the lock and improvements was as follows:⁴

Survey	\$ 650.00
Excavation of prism of canal and pier revetment.....	920,000.00
New lock and operating machinery	951,850.00
Movable dam foundation and pier swing bridge and wickets.....	95,500.00
Purchase of land, grading and sloping	32,000.00
Engineering, office expenses, superintendence	150,000.00

Total cost of new lock and canal\$2,150,000.00

¹Scrapbook of Hon. H. P. Davock.

²Report of Chief of Engineers, 1882, Appendix J. J., and report of Alfred Noble, Assistant Engineer.

³Historical Sketch. First Lieutenant Harry F. Hodges, Corps of Engineers. Ann. Report of Chief of Engineers, for 1886, Appendix J. J.

THE SAINT MARY'S CANAL

This lock was named in honor of General Godfrey Weitzel, of the Engineer Corps, U. S. A., who during its construction from May 1, 1873, was the officer in charge.

He was absent several months in 1878, during which time Capt. Alexander Mackenzie was placed in charge. Alfred Noble, Assistant Engineer, had the local and immediate supervision of the work from its beginning to its completion, and resigned September 1, 1882. He was afterwards a member of the first Nicaragua Canal Commission and of the United States Deep Water Ways Commission, and still later of the Isthmian Canal Commission.

The appropriations for this work were:¹

July 11, 1870.....	\$ 150,000.00
Feby. 2, 1871.....	100,000.00
Mar. 3, 1871.....	250,000.00
June 10, 1872.....	300,000.00
Mar. 3, 1873.....	200,000.00
June 23, 1874.....	200,000.00
May 3, 1875.....	200,000.00
Aug. 4, 1876.....	130,000.00
June 18, 1878.....	175,000.00
Mar. 3, 1879.....	300,000.00
June 14, 1880.....	250,000.00
Mar. 3, 1881.....	150,000.00
	<hr/>
	\$2,405,000.00

¹Report of Chief of Engineers for 1882, Appendix J. J. Report of General Weitzel.



CHAPTER IX.

TRANSFER OF THE CANAL AND LOCKS TO THE UNITED STATES.



THE Legislature of the State of Michigan, in February, 1869, asked for a grant of \$50,000 in money by Congress to deepen the St. Mary's Falls Ship Canal, because the depth of the canal was insufficient for the passage of loaded vessels of the size theretofore and then in use in the upper lakes, and vessels could only take on partial cargoes, to the great detriment of commerce, mining and other interests.

During the same session of the Legislature, by joint resolution approved April 3rd, 1869,¹ it was recited that the immediate enlargement of the canal was a work of urgent necessity and national importance, and that the State of Michigan had no funds properly applicable to such purpose. The board of control of the canal was authorized and directed to transfer the canal with all its appurtenances, and all the right and title of the State of Michigan in and to the same, to the United States, provided the State should first be guaranteed and secured to the satisfaction of the board of control against loss by reason of its liability upon the bonds issued under and by authority of the act of the Legislature approved February 14, 1859, which provided for the repairing, preservation and operation of the canal. Congress, by an act approved July 11th, 1870, appropriated \$150,000 for the improvement of the St. Mary's Falls Ship Canal and St. Mary's river, and with this the work of enlargement of the canal and the construction of a new lock was begun, and the improvement of the river continued. Between 1870 and 1878, \$760,000 had been expended on the lock pit, walls and other portions pertaining to the Weitzel lock and in straightening the canal at its upper entrance. Captain Alexander Mackenzie, now Chief of Engineers, then temporarily in charge, at the suggestion of General Weitzel, in his report for the fiscal year ending June 30, 1878, stated: "The time has arrived when it is desirable for the good of the improvement that the management and control of the present canal should pass into the hands of the Government." In his annual message to the Legislature of the State, at its 30th regular session, January 2nd, 1879,

¹Laws of 1869, Vol. I, p. 423.

THE SAINT MARY'S CANAL

Governor Croswell said that the canal debt was fully provided for, and would be extinguished as rapidly as it fell due, and before, if the bonds could be purchased, and that the financial condition of the canal was such that it might at any time be transferred to the United States.

The river and harbor act which was approved June 14, 1880, authorized the Secretary of War to accept on behalf of the United States from the State of Michigan the Saint Mary's Canal and the public works thereon: provided such transfer should be so made as to leave the United States



HENRY W. SEYMOUR.

free from any and all debts, claims or liability of any character whatsoever, and that the canal, after such transfer, should be free for public use.

Hon. Henry W. Seymour, a Representative in the Legislature of the State of Michigan, residing at Sault Ste. Marie, was a strong friend of the interests of commerce, and on February 2, 1881, as chairman of the Committee on Federal Relations, he introduced in the House of Representatives a bill¹ providing for the transfer of the canal, and the Legislature,

¹House Bill No. 109.

TRANSFER TO THE UNITED STATES

by an act approved March 3rd, 1881, authorized the transfer of the canal, and further authorized the transfer of all material belonging to the canal and the payment to the United States of all moneys remaining in the canal fund, excepting so much as might be necessary to put the said canal in repair for its acceptance in accordance with the act above cited; provided such transfer of material and payment of moneys should be in consideration of the construction by the United States of a suitable drydock to be operated in connection with the Saint Mary's Falls Ship Canal for the use of disabled vessels.¹

In pursuance of this legislation of Congress and the state, the actual transfer of the canal was made on June 9th, 1881.² The government did not build the drydock, and litigation is still pending in regard to the surplus tolls.³

¹Public Acts of 1881, p. 14.

²Annual Report of Chief of Engineers, 1881, Appendix J. J.

³United States vs. State of Michigan, 190 U. S., 379.



CHAPTER X.

OPERATING AND CARE OF THE CANAL BY THE STATE OF MICHIGAN.



THE Act of Congress of August 26, 1852, granting a donation of lands for the construction of the ship canal required that the canal should be and remain a public highway for the use of the Government of the United States, free from toll or other charge upon the vessels of the Government engaged in the public service, or upon vessels employed by the Government in the transportation of any property or troops of the United States. Tolls, with the above exception, could be charged at such rate as the State chose until the State was fully reimbursed for its expenditures made for the construction, repairs and operating of the canal, with interest, and thereafter the State was authorized to tax, for the use of the canal, only such tolls as should be sufficient to pay all necessary expenses for the care, charge and repairs of the same. It further required the State to keep an accurate account of all the expenditures in the construction, repairs and operating of the canal and the earnings thereof, and to return a statement of the same annually to the Secretary of the Interior. By virtue of the Act of Congress and of the Legislature of the State in 1853 accepting the grant, the State of Michigan, in fact, "was made the trustee to carry out the purpose of the Act of Congress in the construction and maintenance of the canal."¹ The Legislature of the State, in February, 1855, passed a general act providing for the care, charge and operation of the canal and the collection of tolls. The Governor, with the consent of the Senate, was thereby authorized to appoint a superintendent, who was to have the general care and supervision of the canal and property belonging thereto, and was required to receive tolls and keep account thereof, and he was given authority to employ such assistants as should be necessary for operating and keeping the canal in repair. Four cents on every ton of a vessel's enrolled tonnage or measurement was required to be paid before the vessel could pass through the canal. The board of control of the canal constituted by the Legislature, consisting of the Governor, Auditor-

¹United States vs. State of Michigan, 190 U. S., 379.

MICHIGAN OPERATES THE CANAL

General and State Treasurer, was, however, authorized to establish other rates of toll after giving thirty days' notice in two daily papers published in Detroit and Cleveland, and to make rules for the regulation of the canal, which should be binding on the superintendent, who was subject to removal for cause, and in case of vacancy the office of Superintendent could be filled for the remainder of the term by the Board. When the canal was completed, the maps, plans, drawings and models, specifications and patterns



HON. WILLIAM CHANDLER, COLLECTOR, 1877-1881.

of the canal work were required to be delivered to the superintendent. A statistical record was required to be kept by the superintendent, showing the name of the vessel, captain, tonnage, place of enrollment, whether steamboat, propeller or sail vessel, and the tolls collected on each vessel. Experience developed the fact that the statistics obtained were not as complete as desirable. In 1857, the superintendent was required to obtain a statement of the several bills of lading or cargo, and in the course of time the reports

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finally showed the total net tons of freight, of classified freight and unregistered craft, and number of bushels of wheat which were carried through the canal, and other particulars.

The embankment on the north side of the canal began to show a weakness, and breaks of a serious character occurred therein in 1857.

The same year tug boats not carrying freight or passengers were exempted from toll or other charge.

A loan of \$100,000 was authorized by the State in 1859 to be expended in making from time to time necessary repairs upon the locks, gates and walls.

Seven years after the opening of the canal, distinction was made between sail and steam vessels passing through the lock. It was then enacted that vessels propelled by steam should have the right of priority in the passage through the canal, unless the sail vessel had actually entered the canal or locks, or was in the basin before the steam vessel should be ready to enter the same.

In 1865 more stability was given by law to the office of superintendent. His term was to commence in April and continue for two years, and he was required to give a bond in the sum of twenty thousand dollars, with sureties, and a fund known as the Saint Mary's Ship Canal Fund was created.

Superintendent Carleton, in his report for the year 1872, described the great storm which occurred on the 27th of November of that year, and which reached Sault Ste. Marie about half-past six o'clock in the morning. The wind blew from the west strongly and was accompanied with a blinding snow storm. Water and ice were driven from the lake and river into the canal, and the water rose completely over the lock gates, filling both locks to their utmost capacity and overflowing the canal banks at the point where canal improvement was going on, and filling the entire excavation made by the contractors of the canal improvements.

The law of 1877 provided for the appointment of a collector who should have charge of the money, books and accounts of the canal, and should receive tolls and keep accounts thereof. Tolls were reduced to three cents on every ton of a vessel's enrolled tonnage or measurement, although subject to change by the Board of Control.¹

Under this law William Chandler was, May 21, 1877, appointed collector, and held that position until the transfer of the canal in June, 1881.

The gear for opening and closing the gates to the old locks was simple and somewhat primitive. Each gate was opened by a line and closed by a boom, both the line and boom being attached to the gate at the miter post. The power was manual labor and was applied through a capstan on

¹Public Acts of 1877, Act No. 118.

MICHIGAN OPERATES THE CANAL

the wall and the gates could be opened or closed in from three to four minutes. Each lock could be filled or emptied in about seven minutes, and they were large enough to admit a tug and a tow of three ordinary vessels.¹

The class of vessels which were built in 1867 and for several years previous thereto was of the capacity of 500 tons and drew from twelve to thirteen and one-half feet of water when fully freighted. They could not pass through the locks with a full load.

The gross receipts from the canal, principally from tolls, from 1855 to June 9, 1881, the time when tolls ceased, is shown in the following table:

1855.....	\$ 4,374.66
1856.....	7,575.78
1857.....	9,406.74
1858.....	10,848.80
1859.....	16,941.84
1860.....	24,777.82
1861.....	16,672.16
1862.....	21,607.17
1863.....	30,574.44
1864.....	34,287.31
1865.....	22,339.64
1866.....	23,069.54
1867.....	33,515.54
1868.....	25,977.14
1869.....	31,579.96
1870.....	41,896.43
1871.....	33,865.45
1872.....	41,232.44
1873.....	44,943.18
1874.....	38,922.97
1875.....	41,199.04
1876.....	46,867.30
1877.....	44,351.43
1878 ²	49,437.00
1879.....	42,330.28
1880.....	44,760.66
1881 ²	14,633.95
Total.....	\$797,988.67

¹Sketch by Alfred Noble, Assistant Engineer, 1877.

²History of St. Mary's Falls Ship Canal, 1877, William Chandler. Auditor General's Reports for 1879-1880-1881.

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The superintendents of the canal from 1855 to the date of transfer in 1881 were:

Names.	Date of Appointment.	
John Burt.....	February 12, 1855.....	Term to commence April 1st
Elisha Calkins.....	February 14, 1857.....	Term to commence April 1st
Samuel P. Mead.....	January 13, 1859.....	Term to commence April 1st
George W. Brown.....	February 14, 1861.....	
George W. Brown.....	March 25, 1863.....	
Guy H. Carleton.....	March 16, 1865.....	
Guy H. Carleton.....	March 27, 1867.....	
Guy H. Carleton.....	March 17, 1869.....	
Guy H. Carleton.....	March 31, 1871.....	
Guy H. Carleton.....	April 3, 1873.....	Resigned September 26, 1873
Frank Gorton.....	September 20, 1873.....	
Frank Gorton.....	April 1, 1875.....	
John Spalding.....	April 26, 1877.....	Office ceased June 9, 1881



CHAPTER XI.

OPERATING AND CARE OF LOCKS AND CANAL BY THE UNITED STATES.



THE transfer of the canal and its appurtenances to the United States was fully completed on the 9th day of June, 1881, at nine o'clock in the forenoon; thereupon all of the laws of the State of Michigan and rules relative to the regulation and control of the canal and the locks became inoperative; the works were under another jurisdiction.

General Weitzel, the engineer officer in charge of the canal, immediately after the transfer caused to be prepared rules and regulations for the government of the canal and those using it, which, on the second day of July, 1881, were approved by the Secretary of War. In the latter part of July, 1881, General Weitzel reported that captains of some vessels had positively refused to obey the orders of the superintendent of the canal and willfully impeded navigation for a short time, and requested instructions how to proceed in such cases. This report was referred to the Judge Advocate General. He was of the opinion that neither the Act of Congress of June 14, 1880, authorizing the Secretary of War to accept the canal, nor any other statute, conferred upon the Secretary of War, or any other person, power to establish rules and regulations, and suggested that in view of the want of such power a reference be made of the whole subject to Congress for action. This suggestion was followed by the Secretary of War. Congress by section seven of the River and Harbor Act, approved July 5, 1884, imposed on the Secretary of War the duty to prescribe such rules and regulations in respect to the use and administration of the canal as in his judgment the public necessity might require. The rules and regulations were required to be posted in some conspicuous place for the information and use of the public, and willful violation of the same subjected the person to a fine not exceeding \$500.00, or imprisonment not exceeding six months. Rules were prescribed by the Secretary of War and went into effect in September, 1884.

Under the Act of August 17, 1894, the Secretary of War may prescribe rules and regulations for the use, administration and navigation of all canals owned, operated or maintained by the United States. Some question has

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arisen as to whether these acts are not a delegation of the legislative power to the Secretary of War, but it has been held in one case¹ that the law of 1894 did not have that effect.

The Act of Congress of August 17, 1894, is the source to which the present executive officers of the government look for the authority of the Secretary of War to make the rules and regulations relative to the canal in question.

The Act of Congress of June 14, 1880, which authorized the acceptance of the canal and locks by the United States, made an appropriation for the improvement of the river and canal, and also authorized the Secretary of War from time to time to draw his warrant on the Treasury to pay the operating expenses.

The appropriation would, of course, be exhausted in a short time for the purposes for which it was intended, and as the act provided the canal should be free to the use of the public, no tolls would be on hand for the operation and care of the canal and locks when they came under the control of the government, as they did afterwards on June 9th, 1881. Experience had also shown that Congress might fail to pass appropriations for executive and other governmental expenses. The 45th Congress had omitted to make appropriation for such expenses for the fiscal year ending June 30th, 1880,² and such failure might again occur.

Observation for several years of the practical operation of the canal and a knowledge of the serious contingencies which might occur to affect the operation and care thereof prompted William Chandler, then collector of tolls of the canal, early in 1881, to seek legislation at Washington, which would safeguard the interests of the great works which were to come under the control of Congress.

He soon summoned to his aid John T. Whiting, of Detroit, Michigan. Representative Omar D. Conger, of Michigan, as well as representatives from the districts in which were situated respectively the Des Moines rapids and Louisville and Portland canals, became interested in the proposed legislation.

The Committee on Rivers and Harbors had not then been organized,³ and such legislation came under the supervision of the House Committee on Commerce which, after a struggle of many years, had in 1879 under the leadership of John H. Reagan, Representative from Texas, succeeded in obtaining control of river and harbor bills.⁴

Mr. Reagan, having long experience in legislative matters and a comprehensive grasp of public affairs, was satisfied that some legislation was needed, and the Act of March 3, 1881, provided that for the purpose of

¹U. S. vs. Ormsbee, 74 Federal Reporter, 207.

²Richardson's Messages, Vol. VII, p. 520.

³Congressional Committees, McConachie, p. 357.

⁴Congressional Committees, McConachie, p. 182.

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operating and keeping in repair the Saint Mary's Falls canal the Secretary of War was authorized to draw on the Treasury his requisition, which should be paid out of any money in the Treasury not otherwise appropriated.¹ A more general provision is found in the act of July 5, 1884.²

The operation of the locks is as noiseless as was the building of Solomon's temple. Water is let into the Weitzel lock by two culverts which extend under the floor of the lock from above the upper lock gate to above the lower lock gate. By means of valves the water is let into the culverts, and passes into the lock. The two emptying valves are just above the lower lock gate. The power for operating is obtained from two 30-inch 50-horse power turbines to which water is brought through a supply pipe on the south side of the lock from the canal above the lock. The turbines are geared to a main shaft in the machine house. A belt from the main shaft transmits the power to two force pumps, which pump water into an accumulator, which is of cylindrical shape and holds about 1,859 gallons and has a plunger carrying a heavy cross head from which weights are suspended in a weight case. When the accumulator is full, the belts which run the pumps are thrown automatically on loose pulleys. There are four gate engines. Water is taken under pressure from the accumulator to the engines, and by means of wire ropes the gate leaves are silently opened and closed.³

During the fiscal year ending June 30, 1884, under the direction of Superintendent Wheeler, the grounds lying on the south side of the Weitzel lock and above the slope wall were graded, fenced and sown with lawn seed. Over one hundred yards of walks were graded and leveled, and over five hundred shade trees were planted.

Formerly the canal was lighted with old kerosene lamps. These were replaced with electric lights, lighted for the first time on the 28th of June, 1884.

By joint resolution approved June 26, 1884, Congress authorized the Secretary of War to lease, rent free, to the State Board of Fish Commissioners of the State of Michigan the parcel or strip of land lying between the slope wall of the old locks and the river St. Mary, and requested the Secretary of War to cause the removal of all persons then occupying any part of the premises, on or before July first, A. D. 1884.⁴

The persons whom it was desirable to remove were some Indians and half-breeds, and on the 8th day of November, A. D. 1884, the last house of the Indians was removed from the canal grounds.

The fish commission is not shown to have become a tenant of the United States, and ten years later it accepted a revocable license.

¹21 Stat. at Large, p. 478.

²23 Stat. at Large, p. 147, Sec. 4.

³Book of "Drawings of Saint Mary's Falls Canal and Locks," 1885. Abridgment of description of Assistant Engineer E. S. Wheeler.

⁴23 Stat. at Large, p. 275.

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On August 9, 1886, a large fire occurred in the Village of Sault Ste. Marie, and the fences surrounding the canal grounds were broken down in many places.

The spoil banks resulting from the excavation of the canal in 1855 continued for many years to mar the appearance of the canal, but were finally removed in 1887.



JOHN SPALDING, FIRST SUPERINTENDENT UNDER UNITED STATES.

In 1890 and 1891 branch telegraph offices were established in the public office room of the canal building.

On August 31, 1894, a revocable license was granted the Michigan State Board of Fish Commissioners by the Secretary of War to locate a fish hatchery in the rapids of the St. Mary's river, for which purpose Island No. 3 and seven hundred feet of the river bed immediately below it were given to said commission.

On the outbreak of the war with Spain a special guard of twenty-four deputy sheriffs was established at the locks and continued in service until

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June 27, 1898, after which this duty was performed by a detail from the adjoining military garrison at Fort Brady, Michigan, of the 18th Pennsylvania Volunteers.

In 1899 the Agricultural Department built a two-story brick house on the canal grounds for the use of the Weather Bureau Service.

On the evening of October 7, 1901, the steamer *Robert Fulton*, carrying a cargo of iron ore, entered the Poe lock, bound down, with a whale-back in tow; when the bow of the steamer was two hundred and fifty feet from the lower gates the engineer, misunderstanding the signals, started the engines and worked at full speed ahead until the steamer struck the north gate and did considerable damage. The great liability to misunderstand signals is illustrated in a case of collision occurring in 1896. The steamer *John V. Moran*, on May 7th, between five and seven o'clock in the afternoon, was aground near Sailors Encampment Island, her running lights were up and brightly burning, and she was lying across the western half of the channel of the St. Mary's river, which in that vicinity is dangerous. The steamer *Maurice B. Grover* came down the river and at the "dark hole" became aware that the Moran was in the channel and gave the usual bend whistle. It was alleged that the Moran made no answer, but at the critical moment gave a signal of four blasts upon her whistle, which if long were a call for a tug, if short they were an invitation to the Grover to come on—to hurry up—and the court held that in the excitement of the moment the blasts might well have been curtailed, and the master of the Grover claimed he so understood it.¹

On June 5, 1902, the canal was blockaded, except for tugs and ferry boats, by the schooner *Madeira*, which struck the south end of the railway swing bridge and moved it lengthwise a distance of six feet on the central pier, but the American Bridge Company, on June 10th following, at four o'clock P. M., had succeeded in swinging the bridge clear of the canal.

A strike of the Tug Men's Association commenced on April 27th, 1902, and continued without interfering with the canal service until September 4th of the same year.

From the opening of navigation in 1904 until June 13th of the same year there was a strike in force of the Masters and Pilots Association, which tended to decrease the tonnage passing through the canal for that year.

In addition to their regular duties, the carrying, distributing and delivering of marine mail is done by canal office employees, and the statistical report of the canal officials shows that during the season of 1904 there were delivered 120,405 pieces of mail, of which number 107,104 were letters, 5,114 were postal cards, and 7,586 were newspapers, and 601 parcels.

¹The Maurice B. Grover, 79 Federal Reporter, 378.

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The statistical report of lake commerce passing through the canals during the season of 1904, prepared under the direction of Lieut. Col. Chas. E. L. B. Davis, Corps of Engineers, United States Army, gives the following table of expenses for operating and care of St. Mary's Falls Canal since it came under the control of the United States in 1881:

Year.	Operating.	Repairs.	Total.	Cost Per Freight Ton. Mills.
1882.....	\$21,185.86	\$10,021.62	\$31,207.48	16.62
1883.....	22,134.97	13,374.73	35,509.70	18.94
1884.....	20,337.61	10,875.32	31,212.93	12.28
1885.....	18,635.27	8,607.18	27,242.45	9.49
1886.....	18,871.84	6,529.11	25,400.95	6.86
1887.....	18,887.11	3,251.81	22,138.92	4.53
1888.....	22,858.57	7,040.15	29,898.72	5.36
1889.....	23,987.45	6,762.00	30,749.45	4.44
1890.....	22,737.53	11,586.32	34,323.85	4.14
1891.....	34,657.27	13,673.62	48,330.89	5.80
1892.....	37,895.93	23,493.81	61,389.74	6.07
1893.....	34,402.15	8,009.97	42,412.12	3.91
1894.....	43,103.27	12,109.82	55,213.09	4.95
1895.....	39,063.20	11,845.47	50,908.67	3.73
1896.....	34,806.92	25,956.36	60,763.28	4.22
1897.....	46,750.02	31,354.03	78,104.05	6.60
1898.....	43,464.99	15,425.73	58,890.72	3.93
1899.....	65,142.64	25,165.30	90,307.94	4.66
1900.....	59,282.46	20,010.80	79,293.26	3.23
1901.....	59,457.05	16,018.28	75,475.33	3.64
1902.....	66,914.75	20,779.05	87,693.80	2.86
1903.....	62,648.42	21,228.38	83,876.80	2.65
1904.....	66,563.96	26,684.51	93,248.47	4.25

The General Superintendents of the canal since the transfer to the United States in 1881, have been as follows:

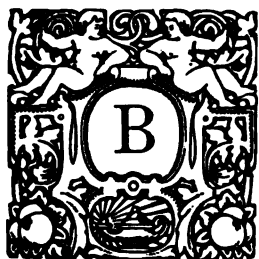
Names.	Date of Appointment.
Alfred Noble.....	July 11, 1881
Eben S. Wheeler.....	Sept. 1, 1882
Joseph Ripley.....	March 1, 1898

The Superintendents of the canal since the transfer to the United States have been as follows:

Names.	Date of Appointment.
John Spalding (Weitzel Lock).....	July 11, 1881
William Chandler (State Lock).....	July 11, 1881
Martin Lynch.....	January 23, 1886
Donald McKenzie.....	July 24, 1893

CHAPTER XII.

INTERNATIONAL RELATIONS.



Y THE treaty between the United States and Great Britain, proclaimed September 11, 1854, the citizens and inhabitants of the United States were granted the right to navigate the River St. Lawrence and the canals in Canada as fully and freely as the subjects of Her Britannic Majesty, subject only to the same tolls and other assessments as then were or might be exacted of Her Majesty's subjects. The British Government, however, retained the right of suspending the privilege on giving due notice thereof to the United States, and the Government of the United States on its part engaged to urge upon the State governments to secure to the subjects of Her Britannic Majesty the use of the several State canals on terms of equality with the inhabitants of the United States. By its terms, the treaty was to remain in force ten years from the date on which it came into operation, and until the expiration of twelve months after either of the high contracting parties should give notice to the other of its wish to terminate the same. This treaty was terminated March 17, 1866.

The Legislature of the State of Michigan passed no act in pursuance of the treaty, but Canadian vessels were allowed to pass through the canal without objection. After the expiration of the treaty, the use of the canal by Canadian vessels was continued without interruption or objection. However, a license to citizens and subjects of a foreign queen or potentate to enter the dominion of a friendly power has its limitations under international law, and does not extend to armed forces. To transport troops and munitions of war through or over the territory of such friendly power without its consent is an offense against the sovereignty of that government.¹

On May 3, 1870, Governor Henry P. Baldwin received information that the Canadian Government was intending to send troops by way of the canal from Collingwood to Red River to quell the Riel rebellion. It is probable that through inadvertence no permission had been asked for the passage of these foreign troops, and Governor Baldwin requested instruc-

¹Wharton's International Law. Digest, Vol. 1, Sec. 13.

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tions of President Grant. The President, through Secretary of State Hamilton Fish, stated that the granting of transit through or over any part of the territory of the United States to the military force of a foreign power was within the control and discretion of the Federal Government, and that he did not desire that any military expedition of any foreign power, intended for the purpose of taking part in any military or warlike expedition, or boats carrying warlike material, be allowed to pass through the canal without express instructions to that effect from the government at Washington. Governor Baldwin immediately instructed Superintendent Guy H. Carleton, in accordance with the desires of the President, at the same time particularly cautioning him to incur no responsibilities other than those which the case might clearly demand; to inform himself fully before acting, and to be satisfied beyond question that the vessel seeking passage came wholly within his instructions. Before Superintendent Carleton had received his instructions, however, the Canadian steamer Algoma, believed to have on board war material for the Red River expedition, had passed up through the canal. About the 10th of May, 1870, the Canadian steamer Chicora passed up the St. Mary's river and about 10 miles below Sault Ste. Marie she landed thirteen boats on the Canadian side, together with men to handle them, and then passed on to Sault Ste. Marie, where she arrived about one o'clock on the afternoon of the same day.

Superintendent Carleton was convinced that the Chicora was engaged in carrying material and men for the Red River expedition. Conferring with Col. Offley, commandant at Fort Brady, he refused to permit her to pass through the canal.¹ Afterwards she discharged her cargo at Sault Ste. Marie, Ont., and returned to Collingwood. Superintendent Carleton reported his action to the Governor, who on the 13th of May, 1870, directed him to exercise great care not to provoke hostilities, and not unnecessarily to interfere with the regular commercial business of the Canadian people.

Sir Edward Thornton, the British Minister at Washington, assured the Department of State on May 16th, 1870, that the difficulties, if any, in the Red River settlement, were amicably arranged to the satisfaction of the delegates to the convention representing the whole population of the Fort Garry district; that a liberal act for the government of that country had been passed by the Canadian Parliament; that the expedition was a peaceful one, with the object of maintaining good order in the district; and that there was no purpose to send through the canal any troops or munitions of war. Governor Baldwin was so notified, and in accordance with the request of the Department of State, gave instructions to permit the passage of the Chicora and other Canadian steamers so long as they did not carry troops or munitions of war.²

¹Report of Secretary of War, 1870, Vol. I, p. 144.

²Archives in office of Secretary of State, Michigan.

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This incident was made the subject of some spicy remarks by the Canadian papers. The "Toronto Globe" of the 13th of May, 1870, commenting thereon said:

"As a matter of course if there was talk of war between the two countries, or if it were a question of the maintenance of neutrality with other powers, the canals, whether Canadian or American, would be treated as exclusively belonging to the country which owned them. In this case, however, there is no question of neutrality. "President Riel," in the palmiest week of his reign, has never been acknowledged as an independent authority by the United States, and even if we were waging war upon him with the stores carried by the *Chicora* there would be no excuse for the Americans preventing their passage through the Sault Canal. As it so happens, however, that all disputes have been settled—that there is no prospect of a collision in Manitoba—that the stores are being taken up simply to provide for a garrison about to be placed in the new province for the safety of its inhabitants—the exclusion of the *Chicora* from the Sault Canal is a wrong inflicted upon our government.

The cabinet of President Grant have not succeeded by this step in preventing—hardly even in retarding—the progress of the Red River expedition. The *Algoma*, which has already passed the Canal, will be ready to convey to Fort William the stores which the *Chicora* and other vessels will convey from Collingwood to the Sault, and which will be hauled across the Portage. Probably a week will be the extent of the delay which will thus be created. The action of the American Government in the light of this fact appears utterly contemptible. It would seem that they desire to gain favor with the Fenians by their apparent interference with the expedition, while, at the same time, they had it not in their power actually to retard it."

About the time of these incidents the United States was asserting claims against Great Britain for vessels captured by the confederate cruiser *Alabama*, and to provide not only for an amicable settlement of these claims, but also for other causes of difference between the two governments, the treaty of Washington was concluded and was proclaimed July 4th, 1871, and among the many articles of the treaty was the following:

ARTICLE XXVII.—The Government of her Britannic Majesty engages to urge upon the Government of the Dominion of Canada to secure to the citizens of the United States the use of the Welland, St. Lawrence, and other canals in the Dominion on terms of equality with the inhabitants of the Dominion; and the Government of the United States engages that the subjects of her Britannic Majesty shall enjoy the use of the St. Clair Flats Canal on terms of equality with the inhabitants of the United States, and further engages to urge upon the State Government to secure to the subjects of her Britannic Majesty the use of the several State canals connected with the navigation of the lakes or rivers traversed by or contiguous to the boundary line between the possessions of the High Contracting Parties, on terms of equality with the inhabitants of the United States.

Governor Baldwin's attention was called to the treaty by President Grant, and on March 13, 1872, in a message to the Legislature, then in special session, he said he was not aware that the laws of the State relating to the canal made any discrimination between the citizens of the United States and those of any other country, but he recommended the passage of a joint resolution giving official assent to the use of the canal in accordance with the terms of the treaty, and by joint resolution approved March 23, 1872, Her Britannic Majesty's subjects were by the Legislature granted the use of the St. Mary's Falls Ship Canal on terms of equality with the inhabitants of the United States.

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In 1887 complaint was made by the Lake Carriers and Boards of Trade of the levy of discriminating tolls by the Canadian Government on cargoes passing through the Welland Canal, and the subject was mentioned by the Commissioner of Navigation in his report. Secretary of State Bayard brought the matter to the attention of the British minister and the Canadian Government, but the complaint was alleged to be without foundation.¹ The dissatisfaction, however, was not allayed. The House of Representatives called for copies of the diplomatic correspondence, and Representative Dingley, of Maine, on July 28th, 1888, introduced in the House a bill providing for tolls on Canadian vessels passing through the St. Mary's Falls and St. Clair Flats canals in case of discrimination on Canadian canals against vessels or ports of the United States.² The bill, however, was not brought to a vote. Postmaster-General Don M. Dickinson, of Michigan, a member of the cabinet of President Cleveland, was in sympathy with the demands of the Lake Carriers, and his influence was exerted in their behalf.

President Cleveland submitted the matter to Congress in a special message on August 23, 1888. Referring to Article XXVII. of the treaty of Washington, he stated that while the tolls charged in the first instance were the same to all, such vessels and cargoes as were destined to certain Canadian ports were allowed a refund of nearly the entire tolls, while those bound for American ports were not allowed any such advantage. He recommended such legislative action as would give Canadian vessels navigating our canals, and their cargoes, precisely the advantages granted to our vessels and cargoes upon Canadian canals, and that the same be measured by exactly the same rule of discrimination.³

The time for action had, however, not yet arrived. For several years a toll of twenty cents per ton had been imposed on freight passing through the Welland canal. Early in 1890 this rate was in force, but was then reduced on coal passing east down the canal from twenty to ten cents per ton. Rebates of eighteen cents per ton on wheat and other cereals passing through the canal destined for Montreal and points east of Montreal were allowed by order in council. Large vessels carrying grain from the northwest could not pass through the canals on the St. Lawrence, and as Ogdensburg, an American port, furnished elevators, cargoes of grain could be promptly delivered and stored in them and transferred into river barges whenever the ocean steamer was about ready to load at Montreal. Kingston, a Canadian port, having no elevators, the transfer was there made direct from the vessel to the river barges, which often arrived at Montreal

¹Foreign Relations, 1888, pp. 813, 814, 824.

²Cong. Record, Vol. 19, Pt. 7, p. 6987.

³Richardson's Messages, Vol. VIII, p. 627.

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long before the ocean steamer was in readiness to load, and the delay in waiting for the steamer caused considerable expense.

In March, 1891, an order in council was issued whereby it was provided that trans-shipment of cargoes for Montreal, if at a Canadian port, should not prevent the refund of eighteen cents per ton, or nine-tenths of the tolls. If the trans-shipment was at an American port, it was held that there could be no refund. September, 1891, the Lake Carriers' Association presented to Secretary of State Blaine a clear and convincing statement showing the discriminating tolls at the Welland canal, and averring that the official canal statistics for the year 1890 showed that "of the total cargo tonnage of the canal fifty-seven per cent destined for American ports paid more than seventy-two per cent of the tolls. Forty-three per cent destined for Canadian ports paid less than twenty-eight per cent of the tolls. With only one-third more cargo than Canada, we paid nearly three times as much in cargo tolls."¹ A conference of Canadian Commissioners and Secretary Blaine and Gen. John W. Foster was held at Washington in February, 1892, at which the subject of tolls came up, and Secretary Blaine vehemently characterized the discriminating tolls as a clear violation of Article XXVII. of the treaty. In April following, by an order in council, said to have been issued inadvertently, the right to rebates was again extended to shipments "from any Canadian Lake Ontario port." Considerable diplomatic correspondence resulted concerning the construction of Article XXVII. The Canadians argued that in the rebates there was no discrimination between Canadian and American vessels. To this President Harrison, in his message of April 20, 1892, replied:

"It is wholly evasive to say that there is no discrimination between Canadian and American vessels; that the rebate is allowed to both without favor upon grain carried through to Montreal or trans-shipped at a Canadian port to Montreal. The treaty runs:

"To secure to the citizens of the United States the use of the Welland, St. Lawrence, and other canals in the Dominion on terms of equality with the inhabitants of the Dominion."

President Harrison continued: "It is a matter of regret that the Canadian Government has not responded promptly to our request for the removal of these discriminating tolls.

"The papers submitted show how serious the loss inflicted is upon our lake vessels and upon some of our lake ports. In view of the fact that the Canadian Commissioners still contest with us the claim that these tolls are discriminating and insist that they constitute no violation of the letter or spirit of Article XXVII of the treaty, it would seem appropriate that Congress, if the view held by the Executive is approved, should with deliberation and yet with promptness take such steps as may be necessary to secure the just rights of our citizens."²

Diplomacy failed, and Senator Cushman K. Davis, on June 22, 1892, introduced a bill to enforce reciprocal and commercial relations between

¹Foreign Relations, 1892, p. 253.

²Richardson's Messages, Vol. IX, pp. 242-243.

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the United States and Canada, and on the day following Representative N. Martin Curtis, of New York, introduced a similar bill.¹

July 1, 1892, President Harrison, in a message to the Senate transmitting some of the diplomatic communications, said there could be no doubt that a serious discrimination against our citizens and our commerce existed; that such discrimination was not the incident, but the purpose of the Canadian regulation.²

The Curtis bill was called up in the House on July 21st by Representative James H. Blount, of Georgia, who made a convincing argument in favor of its passage.³ Hon. Robert Hitt, of Illinois, of the Committee on Foreign Relations, which had reported the bill, urged the passage of the bill and utterly despaired of any settlement through diplomatic channels. Replying to the objection that the bill gave the President extraordinary powers, he said:⁴

"This grain rebate, I will state to the gentleman, is not the only vexation of which we have cause to complain; there is a long series of acts by which we have suffered, which it would be long to specify, too long for a law in detail, and against which we desire to have a preventive power in the hands of the President, in this specific and precise measure of retaliation. The action of Congress I regard as essential to confer this power and at once to bring those ministers to terms, who will argue, evade and delay for years in negotiations, just as they have done and are doing.

"Mr. Turner: But what I object to is the enlargement in this manner of the executive authority.

"Mr. Hitt: There must be a discretionary power somewhere to deal with a question of this character, as any one must feel who knows how we have been treated heretofore."

The Curtis bill was passed on July 21st, and was at once sent to the Senate, and in accordance with a request of Senator Frye, it took the place of the Senate bill and was passed on motion of Senator Davis, and was approved July 26, 1892, by President Harrison, and was known as the "Curtis Act." The act provided⁵ that on and after the first day of August, 1892, whenever and so often as the President should be satisfied that the passage through any canal or lock connected with the navigation of the St. Lawrence river, the Great Lakes, or the waterways connecting the same, of any vessels of the United States, or of cargoes or passengers in transit to any part of the United States, was prohibited or made difficult or burdensome by the imposition of tolls or otherwise which, in view of the free passage through the St. Mary's Falls Canal permitted to vessels of all nations, he should deem to be reciprocally unjust and unreasonable, he should have the power and it should be his duty to suspend by proclamation to that effect, for such time and to such extent (including absolute prohibition) as he should deem just, the right of free passage through the

¹Cong. Rec., Vol. XXIII, Pt. 6, p. 5481.

²Richardson's Messages, Vol. IX, p. 243.

³Cong. Rec., Vol. XXIII, Pt. 7, p. 6530.

⁴Cong. Rec., Vol. XXIII, Pt. 7, p. 6531.

⁵27 Stat. at L., p. 267.

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St. Mary's Canal so far as it related to vessels owned by the subjects of the government so discriminating against the citizens, ports or vessels of the United States or to any cargoes, portions of cargoes or passengers in transit to the ports of the government making such discrimination, whether carried in vessels of the United States or of other nations, and in case and during such suspension, tolls should be levied, collected and paid upon freight not to exceed two dollars per ton, and upon passengers not to exceed five dollars cash, as should be determined by the President.

"Provided, That no tolls shall be charged or collected upon freight or passengers carried to and landed at Ogdensburg, or any port west of Ogdensburg and south of a line drawn from the northern boundary of the State of New York through the St. Lawrence River, the Great Lakes, and their connecting channels to the northern boundary of the State of Minnesota."

Some time elapsed before the President issued his proclamation, evidently hoping for a discontinuance of the discrimination, but when the Secretary of State, John W. Foster, was notified that grave difficulties presented themselves to an alteration of the tolls during the season of 1892 because contracts and engagements had been entered into based on the continuance of the tariff during the whole season, he replied that the act required the President to establish tolls to run concurrently. Discussion as to future action, he shrewdly remarked, could then proceed under "parity of conditions."¹

President Harrison, on the 18th day of August, 1892, issued his proclamation, reciting the orders in council, and directed that from and after September 1, 1892, until further notice, a toll of twenty cents per ton should be levied, collected and paid on all freight of whatever kind or description passing through the St. Mary's Falls Canal in transit to any port in the Dominion of Canada, whether carried in vessels of the United States or of other nations, and to that extent he suspended the right of free passage through St. Mary's Canal, of any and all cargoes or portions of cargoes in transit to Canadian ports.

The execution of the proclamation by the imposition of tolls upon freight passing through the canal bound for Canadian ports was after several months quite effective, for on the 21st day of February, 1893, the President issued another proclamation, suspending the provisions of the act of August, 1892, wherein he recited an order in council, dated February 13, 1893, whereby the Governor General of the Dominion of Canada directed that for the season of 1893 the canal tolls for the passage of the following food products, wheat, Indian corn, pease, barley, rye, oats, flaxseed and buckwheat, for passage eastward through the Welland Canal be ten cents per ton, and for passage westward through the St. Lawrence canals

¹"Foreign Relations," 1892.

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only ten cents per ton; payment of said toll of ten cents per ton for passage through the Welland Canal to entitle those products to free passage through the St. Lawrence canals; and announced that he had received satisfactory assurance that the order revoked, during the season of 1893, the discriminating tolls and secured to citizens of the United States equality with British subjects as regards the use of the canals.

Said a Canadian barrister writing in 1893: "The need of the Canadian ship canal has been very specially felt on two memorable occasions. The first of these was when the United States government refused to allow Sir Garnet Wolseley to go through the Michigan canal with the Canadian troops on their way to quell the first Riel rebellion. The other was during the canal toll excitement of last year¹." The excitement arising from the action of the United States in reference to the *Chicora* was not lasting. The Governor General of Canada, in February, 1881, gave permission to the "Spaulding Guards" of Buffalo, armed and equipped, to pass over the Canada Southern Railway from Buffalo to Detroit² and early in 1895 when the Canadian canal was approaching completion a suggestion of General Superintendent Wheeler of the St. Mary's Falls Canal regarding an interchange of statistics was approved by Daniel S. Lamont, Secretary of War, and in due course of diplomatic action was authorized by the committee of the Privy Council and since the opening of the Canadian Canal, captain's and watchmen's reports have been interchanged daily whereby the respective canal officials obtain statistics and are enabled to determine the number of vessels that are above or have passed below the locks and their whereabouts.

Another subject relating to the canal of an international character was that of rendering aid and assistance to vessels wrecked and disabled in the waters of the United States contiguous to the Dominion of Canada or in the waters of Canada contiguous to the United States.

May 24, 1890, Congress passed an act permitting Canadian vessels and wrecking appliances to render such aid in the waters of the United States, including the waters of the canal, which was, however, not to take effect until the President made proclamation that reciprocal privileges had been extended American vessels and wrecking appliances in Canadian waters, including the Welland Canal. Considerable diplomatic correspondence passed between the Secretary of State and the British Legation relative to this topic, and it was not until July 17, 1893, that President Cleveland proclaimed that the government of the Dominion of Canada had extended the necessary reciprocal privileges by an order in council taking effect June 1, 1893³.

¹Canadian Magazine, Vol. I, p. 590, article by J. J. Kehoe.

²Wharton International Law Digest, Vol. I, Sec. 13.

³Richardson's Messages, Vol. IX, p. 396.

CHAPTER XIII.

THE POE LOCK OF EIGHTEEN HUNDRED AND NINETY-SIX.



HE lock opened to commerce September 1, 1881, had been in operation but a short time when General Weitzel, in a special report dated January 14, 1882, recommended the immediate construction of a larger lock. General Orlando M. Poe took charge of the improvements on St. Mary's River on August 10, 1883. He concurred with General Weitzel in advising the construction of a new lock. The annual increase in tonnage had been quite uniform for the preceding fifteen years, averaging 107,313 tons per year, and if the same rate of increase continued for eight years the then existing lockage would be entirely inadequate.

General Superintendent E. S. Wheeler, in his report of February 9, 1884, showed that the whole amount of freight in 1883 in vessels drawing 11.5 feet or less was 294,444 tons; that only 11 per cent of the freight business could have been done through the old locks, and that only 1.5 per cent was actually done. It was his opinion that in ten years the lock of 1881 would be as inadequate as the old locks were in 1880.

General Poe, in his report of July 28, 1884, renewed the suggestion of a new lock in the place of the locks of 1855, and early in January, 1885, he submitted to General John Newton, Chief of Engineers, a comparative statement of the commerce through the canal for the seasons of 1883 and 1884, whereby it appeared that the increase in registered tonnage was 47 per cent, and in grain the increase for 1884 was 87 per cent; in flour 82 per cent, and in iron 43 per cent, and that the increase in 1884 was equal to the entire commerce through the canal during the first five years it was open to navigation.

Commercial interest soon was awakened to the advocacy of another lock. A convention of the businessmen of the Upper Peninsula was held at Marquette, Mich., on June 2 and 3, 1885¹. Hon. Henry W. Seymour, of Sault Ste. Marie, presided, and resolutions were adopted for presentation to Congress. The convention asked for liberal appropriations for a new lock and other improvements. Congress, in the River and Harbor

¹Marquette Mining Journal of June 3rd, 1885.

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Act of August 5, 1886, appropriated \$250,000 for the new lock and approaches.

A general project for the work was adopted, based upon a navigation of twenty feet in depth. It provided for a single lock 800 feet long between gates, uniformly 100 feet wide, with twenty-one feet of water on the miter-sills and a single lift of a little less than 18 feet, that being the mean fall of the rapids. The location was the site of the locks of 1855, and it also included the deepening of the canal prism.

Contracts were let on December 22, 1886, for the construction of the coffer-dam, fifteen hundred feet wide to enclose the site of the new lock, and operations began May 4, 1887.

The possibility of a serious injury to the Weitzel lock, occurring during the building of the new lock, aroused the attention of those concerned in Lake commerce. The Chamber of Commerce of Duluth, early in 1887, adopted measures looking toward larger appropriations by Congress, for the improvements necessary to the unobstructed navigation of the St. Mary's River. These resolutions were sent to commercial bodies interested in the navigation of the northern lakes, and fifteen leading commercial organizations issued a call for a convention to be held at Sault Ste. Marie, to consider the situation of affairs relating to the improvement of the canal and locks.

The convention assembled on the 20th of July, 1887, and William F. Phelps, of Duluth, was elected temporary chairman. Thomas W. Palmer, United States Senator, of Detroit, was made permanent president of the convention, William F. Phelps, secretary, and Bruce Goodfellow, of Detroit, and F. J. Marsh, of Duluth, assistant secretaries. The States of New York, New Jersey, Minnesota, Illinois, Ohio, Michigan, Wisconsin and Pennsylvania were represented in the convention. Governor S. P. Gray, of Indiana, sent a strong letter of encouragement. Ex-Senator O. P. Stearns, and Congressmen Nelson and Lind, of Minnesota; Congressmen Farquhar, of Buffalo; Moffat, of Michigan, and Romeis, of Ohio, were present.

Sault Ste. Marie was represented by several delegates from the Citizens' Improvement Association, among the delegates taking an active part in the convention being Hon. Henry W. Seymour, Hon. R. N. Adams, Hon. Otto Fowle and Mr. George A. Cady.

Mr. George H. Ely, of the committee on resolutions, reported a memorial to Congress, which was adopted by the convention. It set forth the inadequacy of the appropriations for the improvement of the St. Mary's River and the Hay Lake channel and the new lock; and showed by statistics of canal business the necessity for the speedy completion of the works. Congress, on August 11, 1888, appropriated one million dollars for the new lock.

The contract for building a pier along the river front of Fort Brady



GENERAL ORLANDO M. POE.

THE POE LOCK

was let December 26, 1888, and the work was finished in October, 1889. Messrs. Collins and Farwell in March, 1889, secured the contract for the excavation of the lock-pit. The coffer-dam was nearly completed in September, 1889.

Work on the lock-pit was carried on during the year 1889. At the close of navigation that year a bridge on scows was built and a track laid to Fort Brady, and during the winter the greater part of the material excavated was deposited behind the Fort Brady pier. When navigation opened in the Spring of 1890 scows were used to carry the excavated material to this pier. Congress, in the River and Harbor Act of September 19, 1890, appropriated \$900,000 for continuing the work and authorized the Secretary of War to enter into continuing contracts for materials and labor for the entire structure and approaches, or for any part of the same. The contract for construction of the masonry of the lock walls including materials, labor and appliances was entered into on February 9th, 1891, with Hughes Brothers & Bangs, of Syracuse, New York, a firm consisting of Charles, James and Eugene Hughes and Anson Bangs. These contractors made ample preparations for the great work. Their stone yard was just back of the Fort Brady pier. A track of a thousand feet was laid near the pier on which McMyler traveling cranes were used. Many derricks were used for loading and unloading stone. They had also a stone planing plant. The stone for the lock was quarried at Kelley's Island and Marblehead, Ohio, by the contractors and transported to Sault Ste. Marie. Limestone from Drummond Island, Michigan, was used for backing.¹

A leak started at the lower end of the coffer-dam on September 10, 1890, and lasted five days but the lock pit was kept clear with the pumping plant owned by the Government and the contractors were not delayed. A small leak started in the western end of the coffer-dam on the evening of March 18, 1891. The water soon poured into the lock-pit, filling the same and ran over the lower end of the dam into the river below. Two tons of baled hay and 300 sacks filled with clay were thrown into the break in the dam without materially checking the flow of the water; but the leak was largely checked during the night of the 19th of March by throwing in a wagon load of brush and 500 sacks of clay. The old sheet piling was removed and re-driven along the inner side of the clay wall of the dam and in the afternoon of the 21st one thousand sacks of clay were rapidly thrown into the leak and timbers 12 by 12 inches were driven along the inner side of the clay wall of the dam. Finally the leak was largely cut off² and the pumps set at work and on April 5th the lock-pit completely

¹Report of E. S. Wheeler, Assistant Engineer, July 3, 1894.

²Report of Chief Engineers, 1891, Appendix O 1, p. 2713.

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pumped out. The driving of an iron sounding-rod to the rock bottom at intervals of eight inches, revealed a crevice in the rock bottom of the coffer-dam through which water still passed. General Poe, in his report of July 10, 1891, thus describes how the leak was closed:

"In order to fill this crevice with clay the process known as "stock ramming" was resorted to. An iron pipe was driven through the clay wall into the crevice. The pipe was filled with clay and a plunger driven by a pile driver forced the clay out of the lower end of the pipe at the spot where it was most needed. Four hours with this apparatus, April 15th, closed the leak so that only a small drip was left."

May, 1891, the contractors put in operation a steam stone-crusher breaking stone for concrete; in the latter part of June following they began laying the concrete foundation of the walls of the lock, and on July 30, 1891, they began stone cutting.

In July, 1892, two contracts were entered into by Dunbar & Sullivan for deepening the first and second sections of the prism of St. Mary's canal. Hughes Brothers & Bangs, in 1893, received the contracts for the construction of the floor of the lock and the turbine power-plant. They completed the masonry work November 10, 1893, five days before the time fixed in their original contract expired.

The power-house and office building was designed by Edward Pearce Casey, a son of Chief of Engineers Casey, one of the architects of the Library of Congress.

On the 3rd day of August, 1896, the great Poe lock was opened to navigation. The estimated cost of this improvement was \$4,738,865, and the appropriations sufficient for completing this work, including \$25,000 for widening the channel at the "Elbow" in Lake George, St. Mary's River, were:¹

August 5, 1886	\$ 250,000.00
August 11, 1888	1,000,000.00
September 19, 1890	900,000.00
March 3, 1891, sundry civil act	600,000.00
March 3, 1893, sundry civil act	1,230,000.00
August 18, 1894, sundry civil act	300,000.00
March 2, 1895, sundry civil act	483,865.00
Total.....	<u>\$4,763,865.00</u>

This lock was named the Poe lock in honor of General Orlando M. Poe of the Engineer Corps, U. S. A., who from August 10, 1883, to the time of the completion thereof was the officer of the Engineer Corps in charge thereof.

Mr. E. S. Wheeler was on September 1, 1882, appointed General Superintendent of the canal and assistant engineer and was in the immediate local charge of the construction of this lock until its completion. In 1897-1898 he was Chief Engineer of the Nicaragua Canal Commission.

¹Annual Report of Chief Engineers, 1900, p. 3955. Report of Lieut. Col. G. Lydecker, Aug. 3, 1900.

CHAPTER XIV.

THE HAY LAKE CHANNELS.



HE River St. Mary from the foot of the rapids runs nearly in a straight direction for about two miles to Sugar Island, which divides it into two main channels, one of which passes to the westward of the island and is called the Hay Lake Channel. Before entering this channel the first obstacle to navigation was Little Rapids, or Sugar Island Rapids, which are one and one-half miles in length. Beginning at the foot of these rapids in Hay Lake Channel, approximately eleven miles long. At the foot of Hay Lake is Neebish Island and here one channel passes over the Middle Neebish Rapids, about two miles in length, between Sugar and Neebish Islands, thence into Little Mud Lake, and on to Mud Lake.¹

Before the building of the locks of 1855, it is probable that John T. Whiting, then of Sault Ste. Marie, suggested the plan of cutting a ship canal to connect the upper end of Hay Lake with the river above the falls.² It was not until 1873 that a survey of a route passing through Little Rapids, Hay Lake and West Neebish Rapids was made, and it was six years later that the Middle Neebish outlet of Hay Lake was surveyed. The work was in charge of Alfred Noble, Assistant Engineer, and was completed October 11, 1879.³ General Weitzel, in his special report of January 14, 1882, recommended the improvement of one of the Hay Lake channels because it would give a route with few bends, and one capable of being navigated by night with the assistance of range lights. By this means the traveled distance from Mud Lake to the Canal would be shortened about eleven miles.

Congress on August 2, 1882, appropriated \$200,000 for improving Hay Lake channel through the Middle Neebish Rapids. A channel three hundred feet wide with a depth of seventeen feet was at first proposed, but the width was subsequently changed to a least width of six hundred feet and a depth of twenty-one feet. Work upon this channel was commenced in 1883 and was continued from year to year with liberal appropriations

¹Report of Chief of Engineers for 1897, Appendix C. C. C. Report of E. E. Haskell, Assistant Engineer.

²Report of Chief of Engineers for 1895, Appendix L. L. 4. Historical Sketch by David Molliter, Assistant Engineer.

³Appendix H. H. Report of Chief of Engineers for 1880.

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made by Congress. A strip of land six hundred feet in width through Islands Nos. 1 and 2 was purchased and a channel excavated therein.

In 1889 the State ceded exclusive jurisdiction to the United States of America over all such lands as had been selected and purchased or otherwise acquired and that were or might be used for the improvement of Hay Lake Channel by the United States, only saving to the State the right to serve civil or criminal process within said land in suits or prosecutions for or on account of rights acquired, obligations incurred, or crimes committed within the State but outside of said lands.¹ A difference is to be noted between this act and the act of 1873 ceding jurisdiction over lands required for the enlargement of the ship canal which provided that all crimes committed on such lands should be cognizable by the State courts.²

The steamer North West, followed by the steamer J. H. Wade, without difficulty, passed up through the Hay Lake channel on June 7, 1894, and since that time almost the entire commerce of the river has passed through the Hay Lake channel. Operations in late years have been carried on for the purpose of widening or deepening the channels at different points.

A history of canals and channels cut in part out of rock would be incomplete if it did not recognize the great service to commerce rendered by Charles F. Dunbar, of Buffalo, New York, whose inventive genius made subaqueous rock excavation at Lime Kiln Crossing in the Detroit river profitable at less than \$4.50 per cubic yard measured in the bank, an excavation shown by General Poe to have been made in a current averaging about three miles per hour in a narrow channel while used by at least one hundred vessels per day.

In the fall of 1872 Mr. Dunbar undertook the excavation of subaqueous rock at the harbor of Port Colborne, Lake Erie, where the rock was so hard that three men could only drill about one foot in a day, and the use of some more economical method became imperative. During the winter of 1872 he constructed the first steam drilling machine for subaqueous work, using the hull of an old dredge to carry the machinery, and the same was successfully used by him in the summer and fall of 1873. Again in 1875 he used the machine upon the same work where the difficulties encountered were extreme hardness of the rock and exposure to heavy seas, requiring a machine that could be quickly moved to shelter.

General Poe thus describes this invention and the improvements therein:

"He fitted the scow with a vertical spud at each corner to 'pin' it up and hold it firmly in position, and laid a track on the edge of the deck along which to move the

¹Pub. Acts, 1889, p. 108.

²Session Laws, 1873, p. 39.

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drills. On this track were mounted two five-inch steam cylinder percussion drills, arranged to slide up and down in a vertical frame overhanging the side of the scow. The drills were raised or lowered by means of a windlass operated by hand, and were moved along the track by means of crowbars. The scow was fifty feet long, and by starting one drill at the end, and the other at the middle of the track, each drilling five holes at intervals of five feet, he was enabled to drill ten holes at one position of the scow. Holes nine feet deep could be drilled without changing the drill bits for longer ones. As soon as a hole was drilled through the requisite depth, it was charged and blasted without moving the scow. When one row of holes had been thus disposed of, the scow was moved back from the face of the excavation a distance of six feet, and the operation was repeated."

During the progress of the work at Port Colborne Mr. Dunbar devised his apparatus for charging the drill holes.

"It is equally ingenious and simple, consisting of a copper cylinder, having a smaller diameter than the drill hole, and length sufficient to admit the entire cartridge. At its upper end it is attached to a piece of iron gas pipe long enough to extend well above the surface of the water. The copper cylinder is slotted on one side throughout its whole length, to permit the insertion of the cartridge with its exploding wires fastened to the upper end. When the cartridge, with its wires, has been passed into the cylinder, the latter is inserted in the drill hole, and a long pole is passed down through the gas pipe forming the extension of the cylinder. The whole pipe is then withdrawn, the pole being used to prevent the cartridge from coming with the cylinder. As soon as the charging apparatus has been entirely removed the cartridge is exploded."

While engaged upon work at the Lime Kiln crossing in 1879 Mr. Dunbar considered rigging up a steam engine to move the drills both vertically and horizontally, but adopted a suggestion that he use a hydraulic ram.

The excavation at the Middle Neebish, Hay Lake channel, was in a coarse hard sandstone rock where the drill holes were fifteen feet in some places, and the drill cuttings packed around the drill bit. To obviate this difficulty James McGuire, who was a superintendent under contractors Charles F. and Harris T. Dunbar, made practical application of an old idea of using a steam pump to force a continuous water jet into the drill holes, thus making it possible to easily withdraw the bit therefrom and leaving them free from obstruction to the passage of the cartridge to the bottom of the holes.

The following appropriations have been made for Hay Lake channel:

August 2, 1882	\$200,000
July 5, 1884	125,000
August 5, 1886	150,000
August 11, 1888	500,000
September 19, 1890	400,000
March 3, 1891 (sundry civil act)	300,000
August 5, 1892 (sundry civil act)	115,000
March 3, 1893 (sundry civil act)	225,000
August 18, 1894 (sundry civil act)	150,000
March 3, 1899	100,000
June 6, 1900 (sundry civil act)	250,000
June 28, 1902 (sundry civil act)	144,115

¹Transactions of the American Society of Civil Engineers, Vol. XXX, pp. 478-482,

²"Subaqueous Rock Excavation," by O. M. Poe, Corps of Engineers, Bvt. Brig. Genl. U.S.A.

³Id.

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Middle and West Neebish channels:

June 13, 1902	\$500,000
March 3, 1903 (sundry civil act)	800,000
Total.....	<u>\$3,959,115¹</u>

Congress in the River and Harbor Act of March 3, 1899, made provision for a survey of the connecting waters between Lakes Superior and Huron, including Hay Lake channel, and for a plan and estimate of the cost of such improvement as would secure a safe and convenient channel twenty-one feet deep between said lakes. The project adopted aimed to provide a new outlet channel from Hay Lake to Mud Lake, by way of the West Neebish rapids, with a least width of 300 feet and low water depth of twenty-one feet, and to deepen to the same depth the old channel between Hay Lake and Mud Lake via the Middle Neebish rapids. Congress on June 13th, 1902, appropriated \$500,000 for this improvement, and authorized the Secretary of War in his discretion first to complete the work on the West Neebish channel, and to enter into contracts for such materials and work as might be required to prosecute the project, the work to be paid for as appropriation might from time to time be made by law, not to exceed four million dollars,² and in the Sundry Civil Act of March 3rd, 1903, there was appropriated for continuing the improvement of the Middle and West Neebish channels the sum of \$800,000.³

April 7th, 1904, a contract for the rock and earth excavation at West Neebish rapids was entered into by MacArthur Brothers Company, of Chicago, Illinois, and after the approval of the contract preliminary work was begun May 16th, 1904, and work under the contract began July 11, 1904. A portion of this work is to be done in the dry, and to permit this the river above and below the work was dammed and the water pumped out. A portion of the upper dam was carried away by ice and water about the middle of February, A. D. 1905. This delayed the work of the contractors for several days. Repairs had to be made to the dam and the water again pumped out. This improvement in the West Neebish is the first work in deepening the channels of the river which will be done in the dry. The rock will be quarried instead of dredged. At the time the works were flooded a cut 500 feet long had been made, which varied in depth from eight to twenty feet, and this was filled with water, snow and ice when the upper dam gave way. It is estimated that the work will be completed in June, 1908, and thus separate channels will be provided for up bound and down bound craft between Hay Lake and Mud Lake.

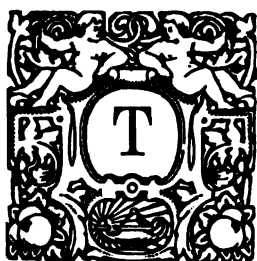
¹Ann. Report Chief of Engrs. for 1904, Appendix O. O., p. 3120.

²32 Stat. at L., p. 361.

³32 Stat. at L., p. 1127.

CHAPTER XV.

THE WATER POWER CANAL.



THE mean fall of the River St. Mary at the rapids is 17.68 feet, and at low water the discharge of the river at this point is sixty thousand cubic feet per second, and for centuries this hydraulic power to the extent of one hundred thousand horse power had been allowed to remain undeveloped.

The Legislature of the State of Michigan in 1883 authorized corporations to be formed, and so far as possible gave authority to such as might be formed, to utilize the waters of the river for purposes of hydraulic power.

The St. Mary's Falls Water Power Company was organized in 1885 and partially constructed a canal, but ceased work in 1889 and a mortgage on its right of way for canal was foreclosed and a sale thereof was made to the bondholders in 1893.

Francis H. Clergue, a couple of years thereafter, commenced negotiations for the purchase of this right of way. In June, 1898, a corporation, afterwards called the Michigan Lake Superior Power Company, was organized under the Michigan law and took over the right of way, and in the early part of September following commenced dredging at the outlet of the proposed power canal and within the established harbor lines. Both the intake and outlet sections of the proposed canal were in navigable waters of the United States, and no consent of the Secretary of War to such work had been obtained. The power company proposed to consume about one-half of the entire flow of the river, or in other words 31,521 cubic feet of water per second.

About the middle of October, 1898, the company submitted its petition to Secretary Alger, stating its intention to construct remedial works in the bed of the St. Mary's river, which would make proper compensation for the increased outflow of the river created by the proposed hydraulic development, and which would preserve intact the levels of Lake Superior and the St. Mary's river. The petition was referred by the Secretary of War to the Chief of Engineers with direction to detail a Board of engineer officers to consider the project of the company.

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The Board held a public meeting at Sault Ste. Marie on November 17, 1898, and parties in interest were granted a full hearing. The Board also held a meeting at Philadelphia, and at Detroit, Michigan, and made its report dated February 23, 1899, and among other things stated that the specific project presented of "remedial works" was a submerged dam of stone-filled cribs located on the Canadian side of the river, and set forth reasons for not granting the petition.

This adverse report, forwarded March 6th, had hardly reached the Capitol before President E. V. Douglas of the Power Company again addressed Secretary Alger, alleging that the company had already expended about \$600,000 on the canal, and guaranteeing that before any water should be diverted through the power canal the submerged dams should be fully



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completed and constructed to the satisfaction of the Government, and asked that the permit for which petition had been made be granted on condition that if it should be found that the natural levels of Lake Superior were changed by the company the Government retain the right to cut off the supply of water, assuring the Secretary that the Government would be protected in this way, and that the company would not interfere with the natural levels of the lake. Chase S. Osborn, of Sault Ste. Marie, Michigan, formerly Commissioner of Railroads for the State of Michigan, aided in the presentation to the Secretary of War of the matter of the petition.

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Secretary Alger, on March 22nd, 1899, advised the president of the company that, as according to his statement the navigability of the waters



FRANCIS H. CLERGUE.

over which the United States had jurisdiction would not be impaired or obstructed, permission or license to execute its works was not necessary from the War Department.¹

¹H. R. Doc. No. 358, 56th Cong., 1st Sess.

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The matter, however, was not allowed to rest. President Frank J. Firth, of the Lake Carriers' Association, gave his attention to the business. Agitation began on the part of those interested in navigation. The matter was brought before Congress, and there was incorporated in the River and Harbor Act of the first session of the 57th Congress, approved June 13, 1902, subject to many restrictions, authority to the Michigan Lake Superior Power Company, its successors and assigns, after first obtaining the consent of the Secretary of War and the Chief of Engineers and their approval of the canal and remedial works proposed, to divert water from the St. Mary's river into its water power canal.

The company is prohibited by this act from injuriously affecting navigation or impairing or diminishing the water levels of Lake Superior or of the ship canal and locks.



CHAPTER XVI.

THE DRY DOCK THAT MAY BE BUILT.



THE first official suggestion of a dry dock as an auxiliary to the canal was made by Superintendent George W. Brown in his annual report for 1863 to Austin Blair, "War Governor" of the State, and in 1864 he averred that twice since the canal was opened vessels had sunk in the canal, and urged that a dry dock would prevent blockades of such a character.

Superintendent Spalding and Collector Chandler, in their joint report of 1877, recommended the construction of a dry-dock, and in their report of 1878 they renewed the recommendation.

Having the benefit of these reports the Legislature of the State of Michigan, in the Act of 1881, which provided for the transfer of the canal to the United States, also authorized the Board of Control at any time they might deem proper, to transfer all material belonging to the canal, and to pay to the United States the moneys in the canal fund, provided the United States in consideration thereof would construct a dry-dock to be operated in connection with the canal for the use of disabled vessels.

Congress, in the River and Harbor Act of 1882, accepted the offer of the state, enacting that whenever the government should not further use the old lock of the Sault Ste. Marie Canal, it should be converted into a dry-dock for the repair of government dredges, revenue cutters and other craft belonging to the government and for craft belonging to private persons on such terms as the Secretary of War should prescribe; and that for the expense and construction the amount of \$65,000, balance of tolls in the possession of the State of Michigan and offered by the state for that purpose be accepted by the United States.¹

When the House of Representatives in December, 1882, requested the Secretary of War to inform the House what, if any, additional works were necessary to serve the interests of commerce of the northern lakes in the River of St. Mary's and the canal, General Weitzel, to whom the reply was assigned, reported that the construction of a dry-dock was necessary; that the navigation of Lake Superior in the first months of each year was

¹22 Stat. at L., p. 204.

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subjected to the danger of dense and persistent fogs, and in the latter part of the season to violent storms, often accompanied by blinding snow, and that it often happened in each year that vessels were injured and required a dry-dock for examination and repairs, and that Port Huron, where the nearest dock was located, was 285 miles distant from Sault Ste. Marie, and that no place on the lakes was better suited for a dry-dock.

General Weitzel was relieved and the charge of the improvement of the River St. Mary and the works at the falls were assigned to General O. M. Poe on July 27, 1883, and the transfer was made on the 10th of August following.

It appears from his report of August 9, 1883, that General Poe was of the opinion that any dry-dock should be wholly independent of the system of lockage.

Congress, in 1884, without reference to its acceptance in August, 1882, of the offer of the state to transfer the balance of tolls to the United States, in the River and Harbor Act of July 5, mentioned the tender of the tolls by the state, and directed the Secretary of War to cause plans and estimates for a dry-dock above the locks, and to report whether the old locks could be used for a dock and the cost of fitting the same for that purpose.

General Poe, reporting in November following to the Chief of Engineers, pointed out, as he had done in June preceding, that the construction of the dock by the government would cause it to enter into competition in a business which belonged to private enterprise. He stated that in view of the great increase in commerce, the objections to any modifications of the old locks to adapt them to dry-dock purposes were overwhelming, and that such a work above the locks would be either insufficient or would materially interfere with the use of the locks and canal.

It is probable that the dry-dock project received its death blow in his supplemental report of December 3, 1884, wherein General Poe showed that in the four seasons since the old locks had been transferred to the United States, they had been used for dry-docking an aggregate of only 344½ hours, and that the general commerce to and from Lake Superior in that period of time made use of the locks for such purpose an aggregate of only 170 hours, and that in his opinion no dry-dock should be built by the government for use in connection with the canal.

In 1897¹ the Legislature directed the Auditor-General to transfer the credit balance of the St. Mary's Ship Canal fund, of \$68,927.12, to the general fund of the state, and a few years thereafter suit was brought by the United States against the state for an accounting as to sales of land and as to tolls received, and the matter is not yet settled.²

¹Public Acts, 1897, Joint Resolution No. 20.

²United States vs. State of Michigan, 190 U. S., p. 379.

CHAPTER XVII.

DEEP WATER SHIP CHANNEL IN THE SHALLOWS OF THE CONNECTING WATERS BETWEEN CHICAGO, DULUTH AND BUFFALO.



IN THE River and Harbor Act of September 19, 1890, Congress took action looking toward a ship channel twenty-one feet in depth and of suitable width in the shallows of the connecting waters of the lakes between Chicago, Duluth and Buffalo. For such a channel improvements were required at Sailors' Encampment, St. Clair Flats, Grosse Pointe Flats, and at the mouth of the Detroit River, the foot of Lake Huron, and the shoals near Round Island, in St. Mary's River. The estimated expense exceeded three millions of dollars.

In furtherance of this project, Senator James McMillan, of Michigan, and Representative Samuel M. Stephenson, of the Twelfth (Lake Superior) District, organized an excursion to the Upper Lakes, which was participated in by members of the Senate Committee on Commerce and the House Committee on Rivers and Harbors. The expenses of the trip were defrayed by the gentlemen named and by contributions from the vessel interests. Among the party were Senators Sawyer, of Wisconsin, and Stockbridge, of Michigan; Representatives Henderson, of Illinois; Stephenson, of Michigan; Gibson, of Maryland; Townsend, of Pennsylvania, and Blanchard, of Louisiana, and Charles H. Keep, of Buffalo, then Secretary of the Lake Carriers' Association, and now Assistant Secretary of the Treasury. The start was made at Cleveland, and stops were made at Detroit and Mackinac Island.

On July 14, 1891, the U. S. Revenue Cutter Fessenden arrived at Sault Ste. Marie with the congressional party. A reception was held by Hon. and Mrs. Henry W. Seymour, and both the locks and the Hay Lake improvement were examined. The necessity of the Hay Lake Channel was impressed on the visitors by the steamer Pontiac, then one of the largest lake vessels, which had been sunk on the forenoon of the day of their arrival, by collision with the Canadian steamer Athabasca, in the St. Mary's River near Wilson's dock, Sugar Island.

From Sault Ste. Marie the trip was continued to Marquette, Houghton.

T H E S A I N T M A R Y ' S C A N A L

Calumet, Duluth and Chicago, in each of which cities the party was entertained by the citizens. Mr. Blanchard, on succeeding General Henderson as chairman of the Committee on Rivers and Harbors, ardently espoused the cause of the deep-water channel, and during the session of Congress succeeding the excursion that project was adopted by the government, and appropriations were made therefor.¹

Operations were commenced in the spring of 1893, and by 1897 the required width of three hundred feet or more had been excavated through all the shoal areas which were considered at the time the estimates were made.

Congress has already indicated that the commerce of the lakes has not, in its opinion, reached its full development. The River and Harbor Act of March 3, 1905, made provision for preliminary examinations or surveys for securing information concerning the commercial importance, present and prospective, of the channel, with a view to obtaining depths of twenty-two and twenty-five feet respectively.²

Appropriations for the channel were as follows:

July 13, 1892	\$ 375,000
March 3, 1893, sundry civil act	875,000
March 2, 1895, sundry civil act	500,000
June 11, 1896, sundry civil act	500,000
June 4, 1897, sundry civil act	1,090,000
Total	<u>\$3,340,000</u> ³

¹River and Harbor Act of July 13, 1892.

²33 Stat. at Large, pp. 1149-1152.

³Report of Chief of Engineers for 1904, Appendix O. O., p. 3093.



CHAPTER XVIII.

SOME ACCOUNT OF PROGRESS.



THE progress of commerce on the lakes, shown in the law, politics and traffic, and in other ways, is worthy of consideration. Courts of admiralty are no longer closed to suitors who seek enforcement of rights connection with navigation on the lakes. A half a century ago doubts existed in the minds of some statesmen as to the power of Congress to regulate interstate commerce carried on by railroads.

Now it is settled that even the telegraph, flashing "ideas, wishes, orders and intelligence" across the continent, is an instrument of commerce and subject to such regulation.¹

It was about fifty years ago that Stephen A. Douglass, in the Senate of the United States, uttered his warning note to the great Democratic party, that negative fighting would not answer, that the navigating interest of the country was too important, too large, to receive nothing but hostility from the government, and that "if you put yourselves in the position of hostility to the navigating interests you will never succeed."²

Years rolled by, and in the platform of that party adopted at Chicago in 1884 is to be found a declaration that the federal Government should care for and improve the Mississippi river and other great waterways of the republic so as to secure for the interior states easy and cheap transportation to tide water.

A little less than fifty years ago Cornelius Vanderbilt, in July, 1856, invited members of the Senate and House of Representatives to visit and inspect his ocean steamer, the *Vanderbilt*, anchored off Greenleaf's Point, having a capacity of 5,400 tons, adding with pardonable pride that it was "the largest steamer that has ever yet floated on the Atlantic Ocean."³

To-day, passing through the locks at Sault Ste. Marie, are steamships whose capacity exceeds 10,000 tons, and upon the Pacific are the twin ships

¹W. U. Tel. Co. vs. Pendleton, 122 U. S., 347.

²Globe, 1st Sess., 34th Cong., p. 1831.

³Globe, 1st Sess., 34th Cong., pp. 1716-1729.

THE SAINT MARY'S CANAL

Minnesota and Dakota, of 21,000 gross tons, constructed by the Great Northern Steamship Company for direct trade with Asia.¹

The first year, 1856, that the locks were open the full season from May 4th to November 28th, the total net tons of freight passing through was 33,817, and the total net registered tonnage of the vessels was 101,458.

The statistics for the season of 1904, of all the locks, American and Canadian, show that the total net tons of freight reported by the vessels was 31,546,106 tons, and the total net registered tonnage was 24,364,138.

Improvements have been made in the methods of taking out iron ore and transporting the same to the lake ports, channels have been deepened in the River St. Mary and St. Clair Flats, and an eminent writer has remarked that:

"By every foot that this depth has been increased the distance between Duluth and Cleveland has been virtually shortened by 100 miles, so that in the forty years in which the depth of water on St. Clair Flats has been doubled and a navigable depth of twenty feet has been established in the St. Mary's Falls Canal, the cost of transporting a ton of ore on the lakes has come down from four mills to six-tenths of a mill per ton mile."²

¹Report of Com. of Navigation, for 1903.

²"The Great Lakes and our Commercial Supremacy." John Foord. North Am. Review, Vol. 167, p. 155.

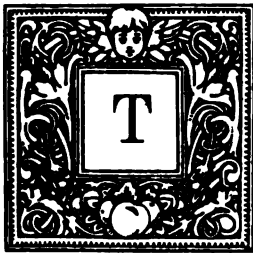


Papers Relating to the Great
Lakes

Commerce of the Great Lakes in 1905

BY RALPH D. WILLIAMS

EDITOR OF THE MARINE REVIEW



THE commerce of the great lakes during 1905 was the real wonder of the world, for if one were to add the combined tonnages of New York, London, Liverpool and Hamburg, it would not equal the traffic of the great lakes during the brief season in which it is possible for the vessels to operate. There is a very reliable gauge of the commerce of the great lakes, and that is the statistics kept by the superintendents of the government canals at Sault Ste. Marie. These canals, of course, measure only the commerce of Lake Superior, but the commerce of this mighty lake may safely be regarded as encompassing more than half the total commerce of the chain of waters. Last year there passed through the Sault Ste. Marie canals 44,270,680 tons of freight, which was carried by 21,679 ships, of which 17,197 were steamers, 3,263 sailing vessels or tow barges and 1,219 unregistered craft. The net registered tonnage of these vessels was 36,617,699 tons. This amazing commerce represented an increase of 40 per cent. over the traffic of 1904.

There is no absolute register of the commerce of the Detroit River, owing to the fact that there is no congressional enactment directing that it be taken; nor is there any appropriation allowed for its compilation. However, the Department of Commerce and Labor, through its Bureau of Statistics, has endeavored to approximate the commerce by a compilation of figures furnished by masters of vessels to the collector of customs. During 1905 an earnest effort was made to get these figures as completely as possible, with the result that the total commerce of the Detroit River is given as 53,639,086 tons, of which 39,991,085 tons was south bound commerce and 13,648,001 tons was north bound commerce. The commerce of the river reaches its maximum in August, as is shown by the monthly statement as follows:

T H E S A I N T M A R Y ' S C A N A L

Months.	South Net tons.	North Net tons.	Total Net tons.
April.	1,575,877	792,711	2,368,588
May	4,551,972	1,352,524	5,904,496
June	5,523,021	1,780,541	7,303,562
July	5,911,625	1,941,534	7,853,159
August	6,300,003	2,314,810	8,614,813
September	4,597,640	1,493,059	6,090,699
October	5,582,689	1,522,905	7,105,594
November	4,593,752	1,578,375	6,172,127
December	1,354,506	871,542	2,226,048
Total	39,991,085	13,648,001	53,639,086

Not all the freight that passes through the canals at Sault Ste. Marie goes by Detroit. A fair part of it is diverted to Lake Michigan through the Straits of Mackinaw. The difference between 53,639,086 tons, the commerce of the Detroit River, and 44,270,680 tons, the commerce of the Sault Ste. Marie canals, is not, however, a fair index of the diversion through the Straits of Mackinaw, because a fair portion of this commerce, both north bound and south bound, would be arrested at Michigan ports on Lake Huron. The difference may, however, be regarded as approximating the commerce of the Straits of Mackinaw.

An intelligent effort has been made during the past year to measure the port to port commerce on the great lakes, which, of course, would be its total commerce. It is shown by government figures that the port to port commerce during 1905 reached the remarkable total of 67,345,620 tons, which is the greatest traffic movement for any calendar year in the history of navigation. The net registered tonnage of the vessels that moved this freight from port to port, as indicated in clearances, was nearly 88,000,000 tons, representing a movement of nearly 80,000 vessels, and being considerably in excess of the combined tonnage of coastwise clearances of England, France and Germany. When it is remembered that this enormous commerce is moved in a season of less than eight months, the tremendous activities of the waterways of the great lakes will be better appreciated. There is nothing like it on the great round globe. That slender neck of water converging at Port Huron for the passage of the Straits is the greatest throat of commerce in the world. Suez, the ungated highway to nations that were old before the dawn of history, cannot claim a commerce equal to one-fifth of it. So rapidly indeed does the commerce of the great lakes expand that the poetic dream of today is the prosaic reality of tomorrow. Gen. O. M. Poe, writing in January, 1891, of the commerce of the great lakes, said: "For thirty-five years I have watched the increase of the great lakes commerce, but neither I nor anyone else has been able to expand



STEAMER JAMES C. WALLACE, 1903 TYPE, AS SHE WOULD LOOK IF PUT ON TOP OF THE CAPITOL AT WASHINGTON.

THE SAINT MARY'S CANAL

in ideas at the same rate. The wildest expectations of one year seem absurdly tame by the side of the actual facts of the next." As General Poe wrote this in 1891 he had only the commerce of 1890 to go by. The commerce of that year through the Sault Ste. Marie canal was 9,041,213 tons, an increase of 2,500,000 tons over that of 1889. The commerce of 1904 was three and one-half times greater than that of 1890, while the com-



DECK VIEW OF THE STEAMER A. B. WOLVIN.

merce of 1905 was, as stated, 40 per cent. greater than that of 1904. Gen. Poe's works prove his vaulting imagination, but vivid as was his imagination, it was completely beggared by the astounding growth of that commerce which his works sought to accommodate. He designed a lock at Sault Ste. Marie, the greatest artificial chamber in the world, intended to forever accommodate four vessels at once, but it was scarcely finished before it was found that it would not accommodate more than two; and today it can accommodate but one.

COMMERCE OF THE GREAT LAKES

The ore trade, of course, is the dominant trade of the lakes. It is so masterful and so supreme that it has absolutely dictated the type of ship and is responsible for the design of shipping and receiving docks. It is a special trade, and special ships have accordingly been built and special machinery invented to care for it, the like of which is not to be found anywhere else in the world. Figures make dull reading, but the figures of the ore traffic of the great lakes involve a romance. They also afford the foundation for the widespread prosperity which is to be seen everywhere in the United States today. Subtract the great lakes ore trade and the whole fabric of our industrial prosperity would collapse. These figures are therefore important, and are given from the time the Sault Ste. Marie canal was first opened until the present day.

1855.....	1,449	1881.....	2,307,005
1856.....	36,343	1882.....	2,965,412
1857.....	15,876	1883.....	2,352,840
1858.....	15,876	1884.....	2,518,693
1859.....	68,832	1885.....	2,466,642
1860.....	114,401	1886.....	3,565,144
1861.....	49,909	1887.....	4,762,107
1862.....	124,169	1888.....	5,063,877
1863.....	203,055	1889.....	7,292,643
1864.....	243,127	1890.....	9,003,725
1865.....	236,208	1891.....	7,071,053
1866.....	278,796	1892.....	9,072,241
1867.....	473,567	1893.....	6,065,716
1868.....	491,449	1894.....	7,748,312
1869.....	617,444	1895.....	10,429,037
1870.....	830,940	1896.....	9,934,828
1871.....	779,607	1897.....	12,464,574
1872.....	900,901	1898.....	14,024,673
1873.....	1,162,458	1899.....	18,251,804
1874.....	919,557	1900.....	19,059,393
1875.....	891,257	1901.....	20,593,537
1876.....	992,764	1902.....	27,571,121
1877.....	1,015,087	1903.....	24,289,878
1878.....	1,111,100	1904.....	21,822,839
1879.....	1,375,691	1905.....	34,353,456
1880.....	1,908,745		

More ore was brought down the great lakes during the single season of 1905 than was moved during all the years from 1855 to 1886 inclusive, or thirty-one years in all. It was nearly three times the movement of even so recent a year as 1897. The shipments by ranges in 1905 were as follows:

T H E S A I N T M A R Y ' S C A N A L

GROSS TONS.

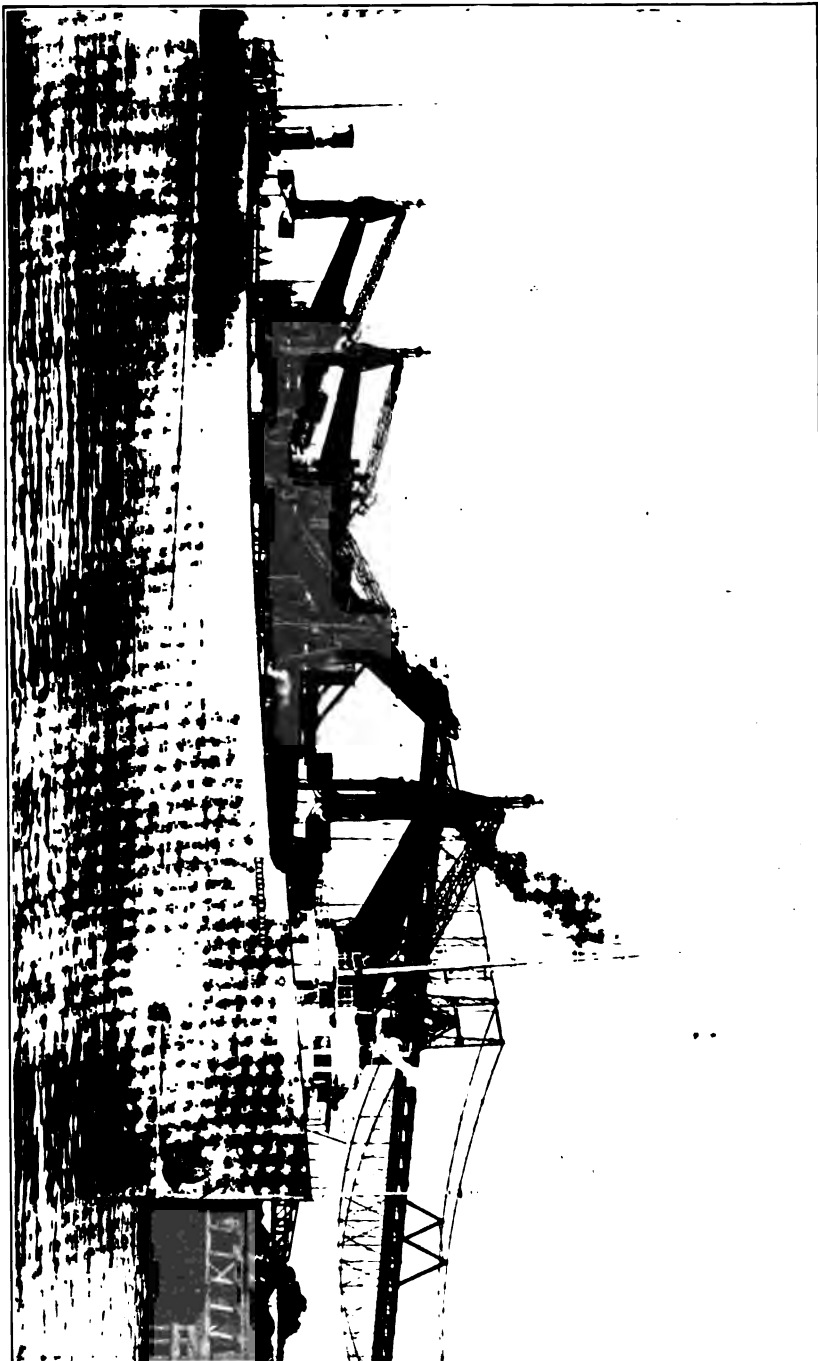
	1905.	1904.	1903.
Marquette Range.....	4,210,522	2,843,703	3,040,245
Menominee Range.....	4,495,451	3,074,848	3,749,567
Gogebic Range.....	3,705,207	2,398,287	2,912,912
Vermillion Range.....	1,677,186	1,282,513	1,676,699
Mesabi Range.....	20,153,699	12,156,008	12,892,542
Miscellaneous	111,391	67,480	17,913
Total	34,353,456	21,822,839	24,289,878

SHIPMENTS BY PORTS AND ALL-RAIL—GROSS TONS.

	1905.	1904.	1903.
Escanaba	5,307,938	3,644,267	4,277,561
Marquette	2,977,828	1,907,301	2,007,346
Ashland	3,485,344	2,288,400	2,823,119
Two Harbors.....	7,779,850	4,566,542	5,120,656
Gladstone		553	85,816
Superior.....	5,118,385	4,169,990	3,978,579
Duluth	8,807,559	4,649,611	5,356,473
Total by lake.....	33,476,904	21,226,664	23,649,550
Total by rail.....	876,552	596,175	640,328
Total shipments.....	34,353,456	21,822,839	24,289,878

Of the total movement of ore by lake during 1905 of 33,476,904 tons, 28,941,259 tons came to Lake Erie ports, the balance going to Lake Michigan ports. These receipts were distributed at Lake Erie ports as follows:

PORT.	TONS.
Toledo	1,006,855
Sandusky	51,202
Huron	825,278
Lorain	1,605,823
Cleveland	5,854,745
Fairport	2,008,621
Ashtabula	6,373,779
Conneaut	5,327,552
Erie	2,112,476
Buffalo and Tonawanda.....	3,774,928
Total	28,921,259



FOUR HOLETT UNLOADING MACHINES AT THE UNITED STATES STEEL CORPORATION'S DOCK, CONNEAUT, OHIO.

THE SAINT MARY'S CANAL

The wonder of the shipping ranges has been Mesabi, which as noted, shipped 20,153,699 tons in 1905. This range was not discovered until 1890, and shipments from it did not begin until 1892. By 1904, however, it had outstripped all the other ranges, passing the total shipments of Marquette, the earliest of the ranges, in that year. It has now 98,950,056 tons to its credit as against 76,800,614 tons for the Marquette range, 53,567,397 tons for the Menominee range, 46,834,680 tons for the Gogebic range, 23,697,904 tons for the Vermillion range, which with some miscellaneous unclassified shipments, make the total output of the Lake Superior country to date



HOOVER & MASON UNLOADING MACHINES AT CLEVELAND.

300,049,755 tons. Mesabi shipments during 1905 were 58.66 per cent. of the total shipments of the year. It is interesting to note that of the total shipments for the year 18,783,221 tons or 54.6 per cent. of the whole were shipped by the United States Steel Corporation.

The pig iron production of the United States during 1905 reached the record-breaking total of 22,992,380 tons, and three-quarters of it was made out of ores that came down the great lakes. It is easy to perceive, therefore, how necessary to the continued primacy of the nation as a steel-making country are the iron ore deposits of the Lake Superior region. Fortunately they exist there in such quantity as to insure the supremacy

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of the United States among the iron-making nations for the next hundred years at least. But it is not alone their profusion which makes the position of the United States impregnable. They have also a great advantage in the cheapness of the cost of assembly at the furnaces. These ores in their journey to the furnaces are favored with a rate of transportation which works out at the lowest cost per ton per mile known. A ton of ore was carried on the great lakes during 1905 one thousand miles for 75 cents; and the ton-mile cost for moving all freight on the great lakes during 1905, was .85 of a mill, or less than one-tenth of a cent. The movement of ore on



HULETT UNLOADING MACHINES AT LACKAWANNA STEEL PLANT, BUFFALO.

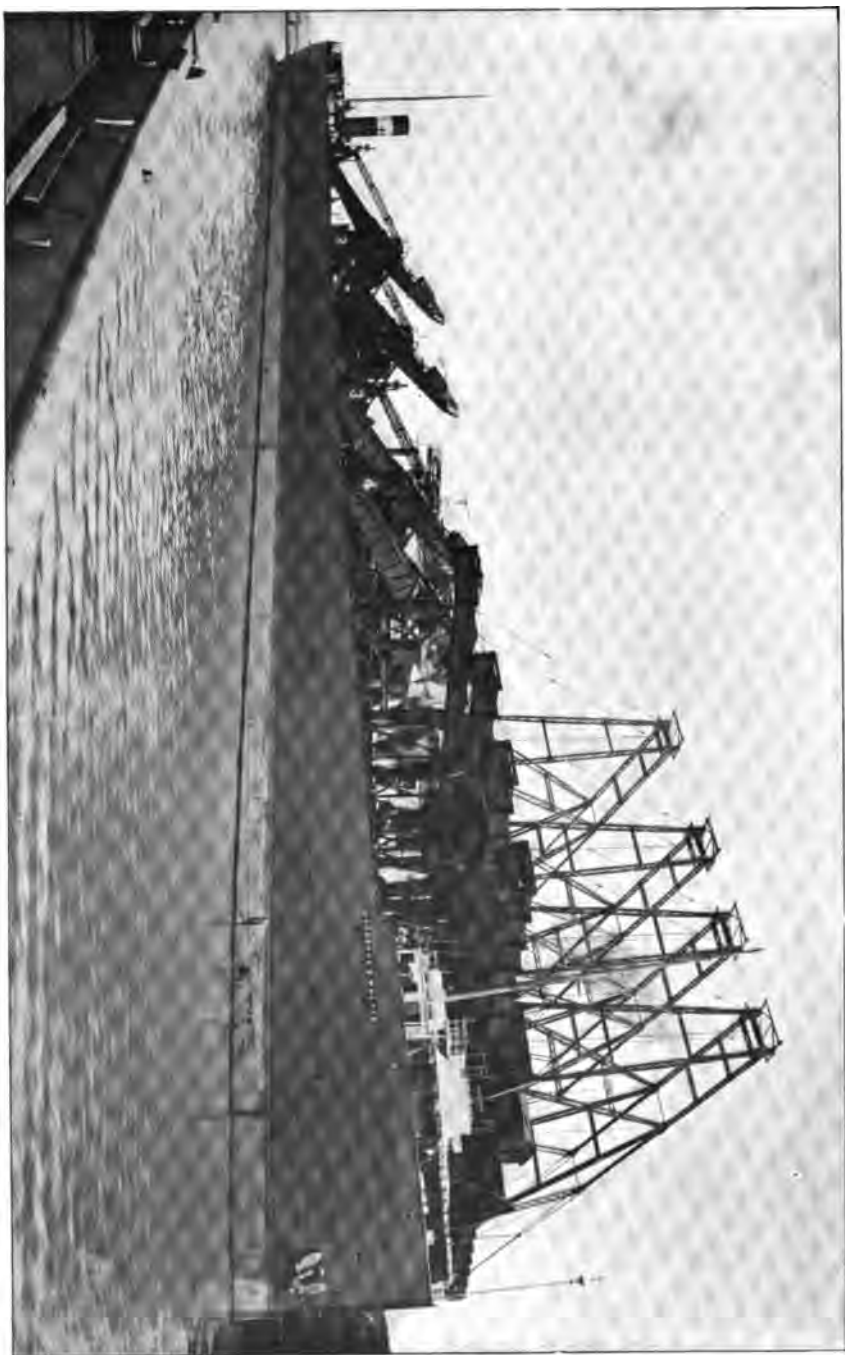
the great lakes during 1905 was phenomenal. It was 12,500,000 tons more than it was in 1904, the mere increase being greater than the movement of any previous year up to 1893. Consider for a moment what this means. It means that ships and docks must be ready to handle a commerce which, without preliminary warning, may add to the present year's business the total commerce of scarce half a dozen years back. It means that the equipment must be ready to handle a commerce that fluctuates within the wide latitude of 50 per cent. That's what the ships and docks did during 1905, and did it so easily and so magnificently that there was no perceptible strain

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anywhere. It was done so simply that no one knew that anything unusual was going on. Yet the performance was in every respect extraordinary. To accomplish it, ships and docks and railways had to add in unison. The receiving docks at the head of the lakes have practically no storage room in proportion to the amount which they ship. The ore can rest in the pockets for a very few hours at the most, sometimes not at all, passing directly into the hold of the ship. The trains which bring this ore from the mines thunder down upon the docks at half hour intervals, and it requires not only great skill, but much courage to handle these swiftly moving parts, unload their cargoes and side track them before the next train arrives. At the receiving docks the cars were in readiness to receive the ore, and it is a fact that nearly 80 per cent. of the ore handled on the lakes last year was unloaded directly into cars. This left Lake Erie docks fairly free from ore at the close of navigation, though they had received 12,500,000 tons more than the preceding year.

The problem of handling iron ore cheaply and quickly on the great lakes has been attacked by a number of inventive minds, until today the system has nigh well reached perfection. To load a 10,000-ton steamer in 80 minutes and unload her in 250 minutes is no mean accomplishment, but that is the record of the great lakes. The great steamer George W. Perkins unloaded a cargo of 10,514 gross tons of ore in 4 hours and 10 minutes at Conneaut, in July, 1905. All of this ore went directly into cars which, of course, makes the achievement all the more wonderful, because the train was practically in continuous motion under the unloading machines.

To follow the ore trade from its beginning is to trace step by step the unfolding of the great commercial panorama of the great lakes, a panorama so majestic that it takes a canvas 1,000 miles long to contain it. The early shipments of ore from the Lake Superior country were attended with infinite toil. There were no railways, not even a wagon road, and all the ore had to be hauled in sleighs in the winter time from the early mines on the Marquette range to the shore of the lakes. It was then loaded by means of wheel-barrows and gang planks upon tiny schooners and conveyed to Sault Ste. Marie where it had to be unloaded, portaged around the falls, and loaded again upon equally tiny ships. In fact, so inconsiderable was the beginning of this enormous industry, that all the ships engaged in the commerce on Lake Superior at that time with all their cargoes could be comfortably stowed in the hold of any one of the giant steamers of today. The ore was usually carried on deck for convenience of unloading, but as the demand for it grew, hold cargoes began to be carried. The problem of unloading these hold cargoes was a tedious one. First of all, staging was built in the hold about half way up from the bottom and the ore shoveled upon it; it was re-shoveled from the staging to the deck and



FOUR BROWN AND FOUR HULETT MACHINES MAKING RECORD UNLOADING THE STR. A. B. VOLVIN.

T H E S A I N T M A R Y ' S C A N A L

was again shoveled into barrows and wheeled ashore, making three handlings in all. This primitive method was supplanted by one which now appears equally primitive. It consisted of a horse with a block and tackle, the tackle being attached to the ship's mast and also to the dock. By this means a horse in walking forward could pull a bucket of ore out of the hold, but in order to get the bucket into the hold again it was necessary for the horse to back up. The horse was subsequently supplanted by a little deck engine in 1867, which faithfully did the work of unloading until 1880,



CONVEYING BRIDGE, HULETT UNLOADING MACHINE AT LACKAWANNA PLANT, BUFFALO.

when Mr. Alexander E. Brown invented his system of hoisting and conveying machinery. The next improvement were the self-filling buckets, capable of grabbing from five to ten tons at a time. It is to these machines that the credit belongs for the almost incredible dispatch obtained in unloading ore, all the development of the past five years. The Hulett and Hoover & Mason machines have indeed worked a revolution in ship design. Vessel owners were quick to see the advantage in a type of ship construction that would facilitate the work of the unloading machine. The unload-

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ing machine could be greatly facilitated in two ways, by abundance of hatch space and freedom from hold obstruction. These were the two things that the shipbuilders set about to supply and speedily evolved a ship, original in design and staunch in construction. Hatches, instead of being few in number and built with 24-ft. centers, were multiplied by two and spaced 12-ft. centers. Rigidity, instead of being secured by stringers and stanchions, was obtained by a girder form of construction which left the hold absolutely free from anything that might interfere with the grab of the unloading machine from pilot-house to engine-room.

The first of these ships built with 12-ft. centers was the *James H. Hoyt*, built by the American Ship Building Co. for Mr. A. B. Wolvin, in 1902. Her performance instantly justified the experiment. She took on a cargo of 5,250 tons of ore in the record-breaking time of 30.5 minutes, and was unloaded by the Hulett unloading machines in 3 hours and 52 minutes. Mr. Wolvin then went a step further, a considerable one it must be admitted. He built, in 1904, the steamer *Augustus B. Wolvin*, 560 feet long, being 62 feet longer than any ship then on the lakes. He gave her thirty-three hatches spaced 12-ft. centers, and in addition dispensed with her hold stanchions by a system of girder arches supporting the deck as well as the sides of the ship. So successful was this form of construction that the Hulett clam shells and the Brown electric machines working jointly upon her ore cargo at Conneaut unloaded her in 4 hours and 30 minutes. The average time that the four Hulett clam shell machines were working on her was 4 hours and 6 minutes, during which time they took out 7,257 gross tons of ore. The average time that the four Brown electrical machines were working upon her was 3 hours and 41 minutes, during which time they took out 2,688 gross tons of ore. This record is the only one in which the work of each machine was preserved. In the record of the *Perkins*, in which 10,514 tons were taken out in 4 hours and 10 minutes, the cars, as stated, were kept in motion, so that it was impossible to determine exactly what was unloaded by each machine. The *Wolvin's* record is given as follows:

HULETT CLAM SHELL MACHINE.

Machines.	Tons.	—Time—	
		Hours.	Minutes.
No. 1	1654	4	17
No. 2	1636	3	55
No. 3	2089	4	03
No. 4	1878	4	08

Total tons, 7257. Average time, 4 hours, 6 minutes.

THE SAINT MARY'S CANAL

BROWN ELECTRICAL MACHINES.

Machines.	Tons.	—Time—	
		Hours.	Minutes.
No. 1	625	3	30
No. 2	717	3	50
No. 3	769	4	04
No. 4	577	3	19

Total tons, 2688. Average time, 3 hours, 41 minutes.

It is a regrettable circumstance that the coal traffic of the lakes is not measured with the same precision that obtains with the ore traffic; but the railways have never been willing to state the exact amount of coal that they deliver at Lake Erie docks for lake shipment. The only figures available, therefore, are those submitted by the collector of customs, which show a movement of 14,665,875 tons of coal in addition to 2,000,000 tons which were consumed as fuel. The coal trade must, however, continue to be a growing trade as the lakes afford the most convenient method of supplying the fast-growing northwest with that commodity.

The lumber trade of the great lakes, at one time the chief trade, far surpassing coal, ore or grain, has of late years been a dying trade, and in the course of nature, must eventually cease. The two great lumber receiving ports of the great lakes are Chicago and Tonawanda. During 1905 Chicago received by lake 448,163,000 ft. of lumber, and Tonawanda received 465,139,603 ft. Of this quantity 416,211,000 ft. were shipped from the Duluth-Superior harbor.

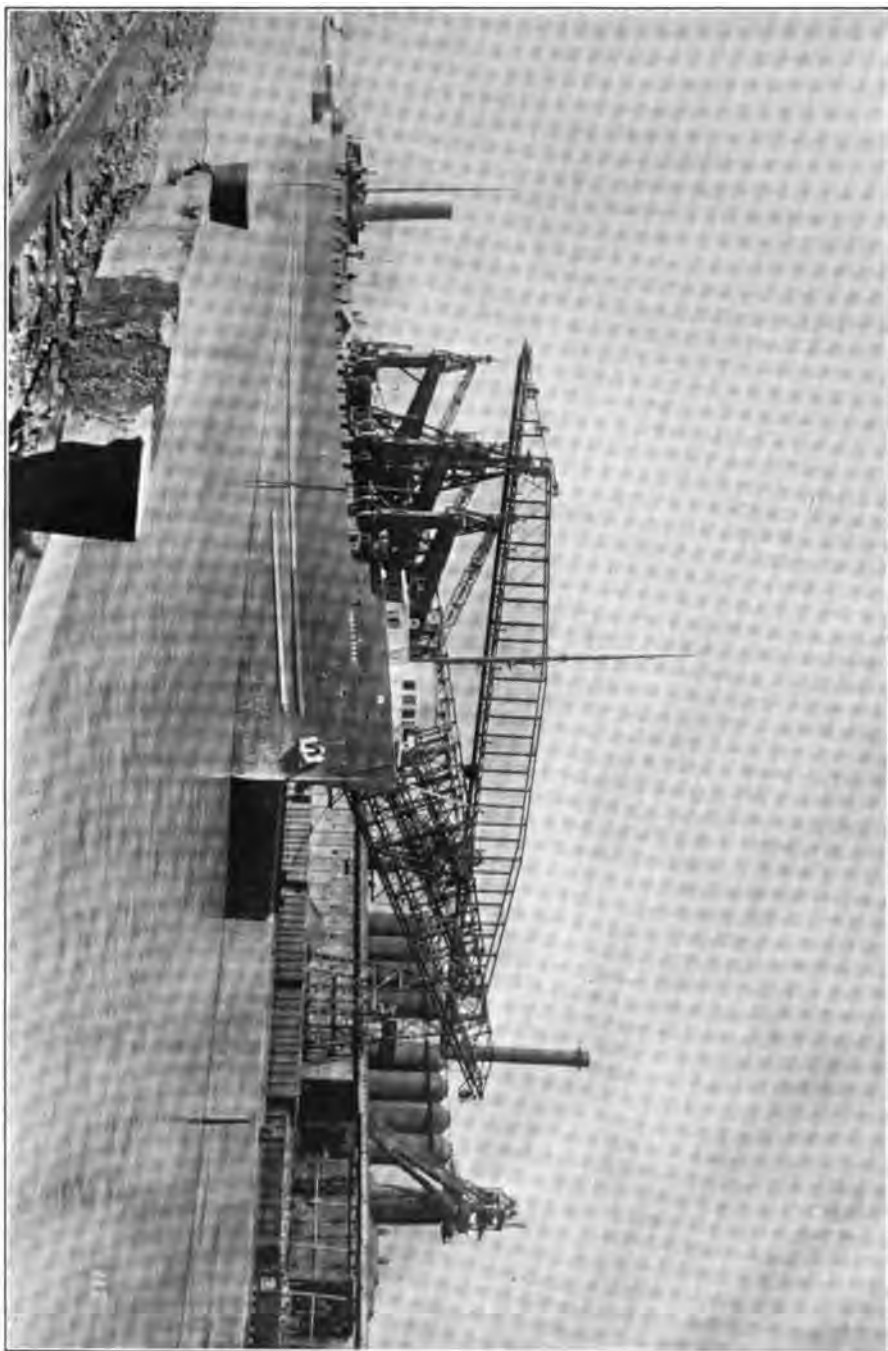
The grain shipments from the head of the lakes last year were: Flour, 5,772,719 bbls.; wheat, 68,321,288 bus.; grain other than wheat, 39,229,553 bushels.

The shipments of grain from Chicago during 1905 were: Flour, 2,399,502 bbls.; wheat, 5,069,982 bus.; corn, 49,772,146 bus.; oats, 11,938,925 bus.; rye, 175,700 bus.; barley, 1,466,068 bus.

Grain receipts at Buffalo were: Flour, 10,201,100 bbls.; wheat, 40,436,616 bus.; corn, 32,745,046 bus.; oats, 25,733,094 bus.; barley, 14,618,495 bus.; rye, 688,484 bus.; flaxseed, 12,244,026 bus., making the total receipts of grain 126,465,729 bus.

The grain commerce of the great lakes during 1905 was approximately 212,000,000 bushels. As this represents far less than 1,000,000 tons dead-weight, it is an inconsiderable commerce in comparison with the ore trade.

During the year 1905, the shipbuilders of the great lakes received a virtual avalanche of orders for new ships. Thirty-three steamers of the most modern type were launched during the year, and as though these were not



HULETT UNLOADING MACHINES AT THE LACKAWANNA STEEL PLANT, BUFFALO.

THE SAINT MARY'S CANAL

enough, the shipbuilders at the close of the year found themselves with orders for forty additional steamers upon their books. No such prodigality of orders has ever been showered upon the shipbuilders of the great lakes before, and it proves how absolutely confident are the vessel owners in their assurance that the great lakes trade must continue to expand. The ships that were pushed off the stocks in 1905, and which will be launched in 1906, are of themselves sufficient to care for a movement of ore as great as the total movement of a dozen years ago. The ships launched during 1905 were as follows:

AMERICAN SHIP BUILDING COMPANY'S YARDS.

Where Built	Name of Vessel	Dimensions in Feet				Carrying Capacity Gross Tons	Owner
		Overall	Keel	Beam	Depth		
Cleveland.....	Francis L Robbins..	400	380	50	28	6,000	Robbins Trans. Co., Cleveland.
Lorain.....	James C. Wallace...	552	532	56	31	10,000	Acme Steamship Co., Duluth.
Lorain.....	Philip Minch.....	500	480	52	30	8,000	Henry Steinbrenner, Cleveland.
West Bay City, Sylvania.....		524	504	54	30	9,000	Duluth Steamship Co., Duluth.
Wyandotte.....	Amasa Stone.....	545	525	55	31	10,000	Pickands, Mather & Co., Cleveland.
Cleveland.....	L. C. Hanna.....	524	504	54	30	9,000	Mahoning Steam. Co., Cleveland.
Chicago.....	E. H. Gary.....	569	549	56	31	10,000	Pittsburg Steam. Co., Cleveland.
Lorain.....	S. M. Clement.....	500	480	52	30	9,000	Buffalo & Susque. St. Co., Buffalo.
West Bay City.....	Socapa.....	524	504	54	30	9,000	Duluth Steamship Co., Duluth.
Wyandotte.....	Lyman C. Smith....	545	525	55	31	10,000	U. S. Trans. Co., Syracuse.
Chicago.....	W. E. Corey.....	569	549	56	31	10,000	Pittsburg Steam. Co., Cleveland.
Cleveland.....	W. A. Paine.....	500	480	52	30	8,000	C. L. Hutchinson, Cleveland.
Lorain.....	W. A. Rogers.....	545	525	55	31	10,000	Niagara Tran. Co., N. Tonawanda
Wyandotte.....	Powell Stackhouse..	524	504	54	30	9,000	Mahoning Steam. Co., Cleveland.
West Bay City.....	H. C. Frick.....	569	549	56	31	10,000	Pittsburg Steam. Co., Cleveland.
Cleveland.....	Bessemer & Marquette No. 2..	350	338	54	36	car	Marquette & Bessemer Dock
Lorain.....	John Stanton.....	524	504	54	30	9,000	Navigation Co., Conneaut, O.
Lorain.....	Joseph G. Butler, Jr.	545	525	55	31	10,000	C. L. Hutchinson, Cleveland.
Cleveland.....	Pendennis White...	436	416	50	28	6,500	Capt. John Mitchell, Cleveland.
Wyandotte.....	W. K. Bixby.....	500	480	52	30	8,000	National Steamship Co., Detroit.
West Bay City.....	James B. Wood.....	534	514	54	31	9,500	Gilchrist Trans. Co., Cleveland.

GREAT LAKES ENGINEERING WORKS.

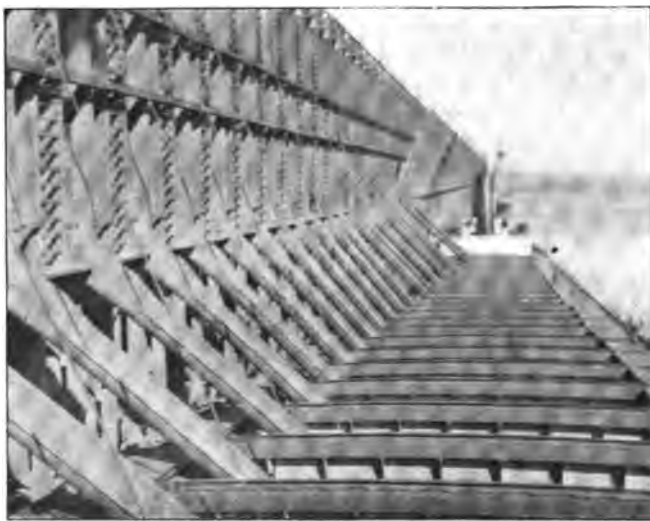
Ecorse.....	James E. Davidson..	524	504	54	30	9,000	Interocean Steam. Co., Duluth.
St. Clair.....	George H. Russel...	484	464	50	28	7,600	Gilchrist Trans. Co., Cleveland.
Ecorse.....	Hoover & Mason....	524	504	54	30	9,000	Zenith Steamship Co., Duluth.
Ecorse.....	Superior.....	408	388	50	30	6,000	Western Transit Co., Buffalo.
Ecorse.....	Peter White.....	524	504	54	30	9,000	Presque Isle Trans. Co., Cleveland.
St. Clair.....	Frank J. Hecker....	484	464	50	28	7,600	Gilchrist Trans. Co., Cleveland.
Ecorse.....	W. G. Mather.....	531	511	60	31	10,000	Cleve. Cliffs Iron Co., Cleveland.
Ecorse.....	Delaware.....	370	350	50	30	5,000	Erie & West. Transit Co., Buffalo
Ecorse.....	Frank C. Ball.....	550	530	56	31	10,000	Globe Steamship Co., Duluth.
Ecorse.....	B. F. Jones.....	550	530	56	31	10,000	Jones & Laughlin Co., Pittsburg.

CRAIG SHIP BUILDING CO.

Toledo.....	James P. Walsh.....	500	480	52	30	8,000	C. O. Jenkins, Cleveland.
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COMMERCE OF THE GREAT LAKES

The year 1905 was indeed remarkable on the great lakes. Not alone for boldness of design exhibited in ship construction; not alone for the enormous trade handled; but also for the extraordinary character of the elements themselves. No such furious storms have ever visited the great lakes as those which marked the fall months of 1905. There were three storms of great violence, one in September, one in October, and the third in November, but the greatest of these was the November storm. Certainly not since steel has been used as a material for ship construction has there been such a storm on the lakes. The great steamers were blown about like cockle shells. So terrific were the combined forces of wind and water that steamers whose engines were driving full speed ahead with valves wide open and every pound of steam on, nevertheless went steadily astern for hours. For economy's sake the modern bulk freighter is equipped with engines of low power, which proved utterly inadequate to hold them against a storm of such extraordinary violence. Nearly a score of modern steel craft were blown against the north shore of Lake Superior, though they fought for hours against that disaster. The vessel losses through the elements during the season are estimated at \$4,000,000, of which \$2,183,000 is credited to the great November storm.



STEAMER WM. A. PAINE LOADING ORE WITH SPOUT IN EVERY HATCH.

Pleasure Boating on the Great Lakes in 1905

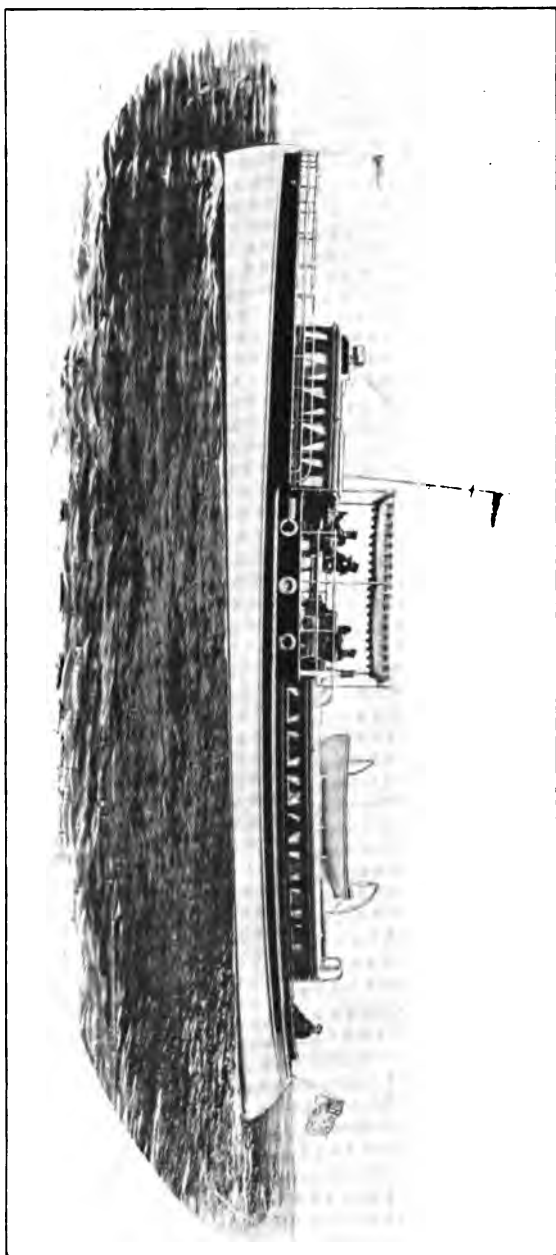
BY ROBERT E. POWER

EDITOR OF BOATING



PLEASURE boating on the Great Lakes today stands foremost in the list of aquatic recreation. Yachting organizations of considerable size and influence in every lake port of any size from Duluth to Kingston present the clearest evidence of its popularity. Many of the larger cities claim plural organizations of great wealth and excellent fleets of pleasure vessels of no uncertain value. These clubs without exception are made up of the better class of citizens who take up this recreation as the cleanest and most healthful form of sport.

As an enterprise, fresh water yachting has advanced within a comparatively short time from a position of doubtful support to one of great importance and extent. The encouragement which has caused this growth has come from various sources. The great commercial activity of the past decade has helped materially through the widening and deepening of connecting waterways, the staking of treacherous channels, the buoying and lighting of shoals and bars and, more especially, the construction of protecting breakwaters along our city fronts. Municipalities have granted special privileges and have assisted in the erection of club houses for the yachtsmen on lake front property, and the United States Government in a few instances have furnished almost perpetual leaseholds of beach land and riparian rights and has built new piers and repaired old ones in order to provide suitable anchorages for the pleasure fleet. To say that commerce and yachting go hand in hand is too broad an assertion and probably not true, but the latter follows close behind in taking advantage of the former's work. Modern design and development and a more genial knowledge of it has caused the sport to reach out tremendously and in the right direction.



THE ONWARD.

T H E S A I N T M A R Y ' S C A N A L

The advent of the internal combustion marine motor has been recent and its perfection rapid. The reliable qualities of this power in the propulsion of small vessels and the speed which they attain and maintain with ease has brought the motor boat into universal favor as a pleasure vessel.

There seems to be no limit to the possibilities of this form of recreation, taking into consideration that its use has just become known, and the future growth of yachting to a great extent lies therein. Sailing yachts will ever



ARCADIA.

be popular just as they are now and as they have been for centuries, but the motor boat bids fair to take their place for all but racing purposes. Speed contests occupy an important place in pleasure boating and a yachting organization is usually judged by the size and quality of its racing fleet. It is this opportunity for chance and the love of well-earned victory, secured by honest and intelligent effort that brings men of energy and capability into yachting and holds them there like a lodestone.

PLEASURE BOATING ON THE GREAT LAKES

Looking over the 1905 season of pleasure boating on the great lakes, the important events are racing ones. Power boat racing on the great lakes is in its infancy, most of the new vessels being built for comfort and cruising. Up on Lake Superior, the Duluth Yacht Club held many sail and power boat races and enjoyed a most successful year despite its isolated position and the absence of inter-club features. The Lipton Cup race for 21-footers at Chicago, and the long-distance sail yacht contest from Chicago to Mackinac, were the most prominent events on Lake Michigan. Mention should also be made of the long race of the cruising power boats for the Rudder Cup which took the contestants from the Windy City to the Straits.



THE IROQUOIS, CANADA'S CUP DEFENDER, 1905.

On Lake Huron the annual Tawas Beach regatta, August 9-12, brought together a fine fleet of yachts from Lakes Erie, Huron and St. Clair to contest for the handsome and valuable prizes that are offered each year to the winners in the several classes. Lake St. Clair was the battle-ground for the 21-footers in the early part of September, when the Country Club of Detroit came up for annual competition. A few days later the great sweepstakes race of the Detroit Yacht Club witnessed a stirring battle for many well-known trophies.

Lake Erie was stirred to its shallow depths throughout the summer with racing of all kinds in every port. Toledo, Cleveland and Buffalo held active campaigns and their large individual fleets bespeak the interest

T H E S A I N T M A R Y ' S C A N A L

shown. Historic Put-in-Bay gathered together the racing boats of the Inter-Lake Association, 100 strong, the latter part of July and a week's program of racing and entertainment was carried out with marked success.

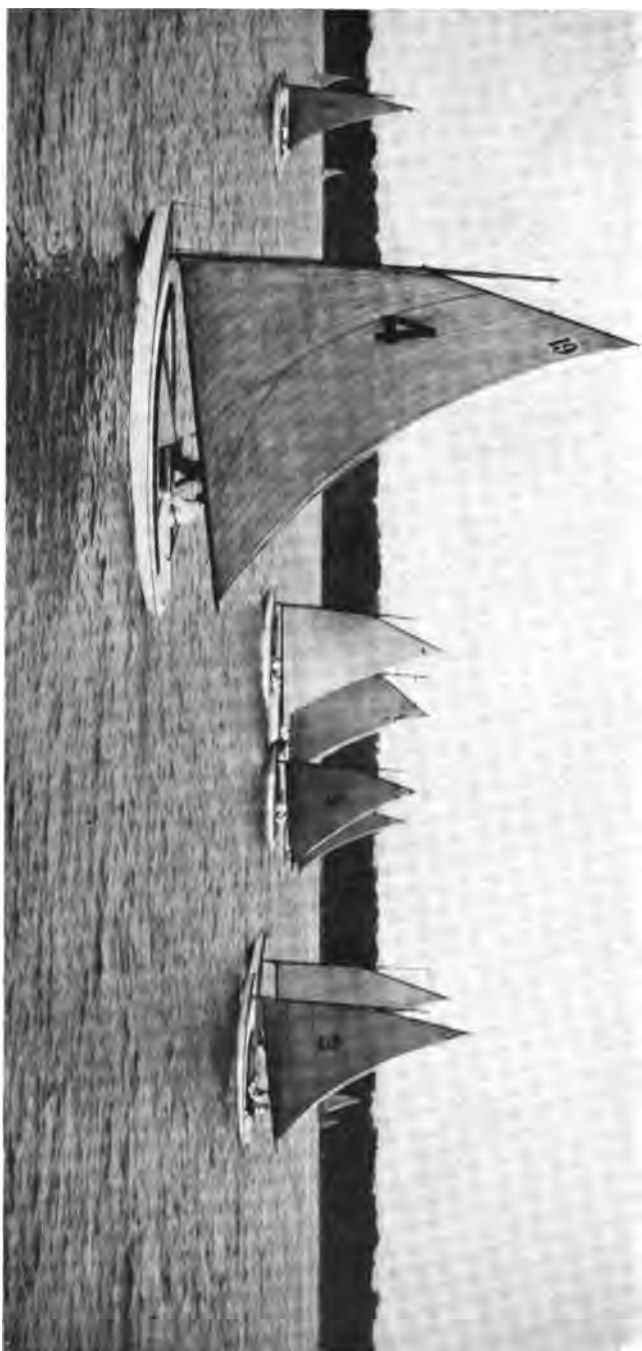
Lake Ontario is a racing ferment, so to speak, especially the north shore where the fine fast fleets of the Canadian clubs follow a schedule of weekly contests and port-to-port cruises.

It might be well to sketch in greater detail the more important pleasure events on the great lakes during 1905. The contests for Canada's Cup, which were sailed off Charlotte in August by the challenger *Temeraire*, designed by William Fife, Jr., representing the Royal Canadian Yacht Club of Toronto, and the *Iroquois*, designed by Charles F. Herreshoff, representing the Rochester Yacht Club, proved to be the occasion of one of the finest regattas ever held on inland waters. Every yacht club on Lake Ontario was represented. Yachts from Buffalo, Cleveland and Toledo were present and about 500 yachtsmen attended. The particulars of these yachts are as follows.

	IROQUOIS.	TEMERAIRE.
Length over all.	52 ft.	50 ft.
Forward overhang.....	10 ft.	10 ft.
After overhang.....	12 ft.	10 ft. 3 in.
Waterline.....	30 ft.	29 ft. 3 in.
Ballast.....	5 tons	5 tons 1,460 lbs.
Draught.....	7 ft.	6 ft. 10 in.
Extreme beam.....	10 ft. 6 in.	10 ft. 2 in.
Beam on deck.....	10 ft. 3 in.	9 ft. 9 in.
Beam on waterline.....	10 ft.
Sail area.....	1,550 sq. ft.	1,547.86 sq. ft.
Mainsail.....	1,100 sq. ft.	1,111.41 sq. ft.
Fore triangle.....	450 sq. ft.	436.45 sq. ft.
Boom.....	37 ft. 6 in.	39 ft. 6 in.
Gaff.....	24 ft. 6 in.	25 ft. 3 in.
Spinnaker boom.....	23 ft. 6 in.	20 ft. 4 in.
Mainsail hoist.....	29 ft. 6 in.	28 ft.
Cabin trunk.....	12 ft. long.	8 ft. long.
Cabin trunk.....	20 in. high.	20 in. high.
Head room.....	6 ft.	6 ft.
Bowsprit.....	7 ft. 4 in.	5 ft.

The wind in the first race blew about six miles an hour, but died down rapidly. Both yachts took short hitches for position after rounding, *Iroquois* heading up better and slowly widening the gap. Rain then fell, killing the breeze, and it was a drifting match thereafter, the *Iroquois* crossing the line 12 minutes and 30 seconds ahead of *Temeraire*.

At the start of the second day, *Temeraire* got the windward berth and led across the line by 15 seconds. She took kindly to the heavy sea running, pointing high and footing fast. The wind freshened to a 20-mile gait, the *Temeraire* taking it without a reef. *Iroquois* made the best of her losing fight, staggering badly under her single reef, and working head sail. *Temeraire* won the race by 5 minutes and 4 seconds.



CAT-BOAT REGATTA.

THE SAINT MARY'S CANAL

The course for the third days' race was triangular with the first leg to windward. *Temeraire* and *Iroquois* shot across the line on even terms with the challenger to windward, reaching the first mark 2 minutes and 52 seconds in the lead. *Temeraire* gained 22 seconds in the second leg. Rounding the mark and on the reach home *Iroquois* lost her balloon jib, which soared high above the masthead. It was recovered quickly, however, *Temeraire* pulling out a lead of three-quarters of a mile. She rounded the homeward leg 3 minutes 35 seconds in the lead. The last leg was a terrific battle between the two yachts, *Iroquois* shortening *Temeraire's* lead by half, but the challenger flew over the line, a winner by 2 minutes 28 seconds.

The fourth race, which was scarcely more than a drifting match, was won by *Iroquois* 3 minutes flat. In the concluding or fifth race *Iroquois* emphasized her victory. During the first half *Iroquois* gained in a light breeze. The wind then freshened and the Canadian challenger burrowed into the sea in a determined effort to overhaul the *Iroquois*, but the race was too nearly over to be lost, *Iroquois* winning by 2 minutes 15 seconds, the first yacht that ever successfully defended Canada's Cup.

The annual sweepstakes race of the Detroit Yacht Club on September 11 was a great success. The race was practically sailed in two divisions, although all the boats started on a single gun. The first division, the larger boats, raced for the Hotel Ste. Claire and the Hotel Harrington cups besides cash prizes aggregating \$400, and the boats that competed for these prizes assumed a minimum racing length of 25 ft. load water line. The second division was made up of the smaller class of 16, 18 and 20-footers, and the first prize for this class was the Commodore Gardner Cup and Flag.

Sitarah won the time prize, a silver punch-bowl, for the best actual sailing time, and *Spray's* victory over *Ste. Claire* was decisive. The summary follows:

Yachts.	Start.	First round	Finish.	Elapsed time.	Finished time.
<i>Spray</i>	12:40	2:18:15	4:01:51	3:21:51	2:49:01
<i>Ste. Claire</i>	12:40	2:23:23	4:08:03	2:28:03	2:55:13
<i>Yo San</i>	12:40	2:27:13	4:15:45	3:35:45	3:02:55
<i>Ventura</i>	12:40	2:26:47	4:16:55	3:36:55	3:04:05
<i>Sultana</i>	12:40	2:21:16	4:03:05	3:23:05	3:07:13
<i>Sitarah</i>	12:40	2:15:20	4:01:40	3:21:40	3:21:49
<i>Elsie</i>	12:40	2:28:25	4:38:55	3:58:55	3:26:05
<i>City of the Straits</i>	12:40	2:34:45	4:33:55	3:53:35	3:39:16
<i>Wrinkle</i>	12:40	2:36:10	4:42:05	4:02:05	3:29:15
<i>Shake</i>	12:40	2:43:32			
<i>Mermaid</i>	12:40	2:45:18			
<i>Carmelita</i>	12:40	2:57:05			

The Chicago Yacht Club and the Jackson Park Yacht Club held cruising races between Chicago and Michigan City, a distance of 36 miles, on September 6. Starting from a weathered shore, all hands spread full sail with spinnakers and kites and it was an hour or more before the fleet found

PLEASURE BOATING ON THE GREAT LAKES

any considerable sea. *Pequod* was the first boat of the Chicago fleet on corrected time, followed close by *La Rita* and *Naiad*. The Jackson Park fleet had extremely hard luck, the *San Toy*, a 16-foot sloop, being swamped and the life-saving crew being required to rescue the crew to the 30-ft. cruising sloop *America*.

The 1905 regatta at Put-in-Bay was the eleventh annual meet of the Inter-Lake Yachting Association. Over fifty yachts competed. Commodore George H. Worthington received the yachtsmen aboard the *Priscilla*, Vice-Commodore Franklin H. Walker aboard the steamer *Pastime* and Rear-Commodore John F. Craig aboard the steam yacht *Edith*. The first race was in the 40-ft. class, won by *Sultana*. The second race was the 30-ft. class, won by *Echota* with *Juaniata* second. The 25-ft. class was a duel between the Toledo boat *Squall* and *Elsie*. It was a battle royal, but was eventually won by *Elsie*. The fourth race was the 21-ft. restricted class with three entries, *Spray*, *Ste. Claire* and *Rooster II.*, *Spray* winning the race. The 20-ft. class was easily won by *Mermaid*, the other entries not touching her at any time. *Mailillian* was the bright particular star of the 18-footers, her windward work being simply wonderful and her victory merited.



KANGAROO.

It would be merely a repetition to discuss in detail the races of the succeeding day, but it is sufficient to say that the Inter-Lake Yachting Association has never held a more successful regatta than that of 1905.

There were three entries for the 1905 competitive cup contest on Lake St. Clair, *Spray*, *Ste. Claire* and *Yo San*. *Spray* won the cup, though she had to fight savagely for it, but she succeeded in proving herself the mistress of the 21-foot class on the lower lakes.

In the 1905 contest for the Lipton cup there were four contestants, *Ste. Claire*, owned by Franklin H. Walker, of the Detroit Country Club; *Mendota*, owned by Com. E. P. Vilas, of the Milwaukee Yacht Club; *Hoosier*, owned by J. F. McGuire, of the Columbia Yacht Club of Chicago,

T-H E S A I N T M A R Y ' S C A N A L

and *Quien Sabe*, built by a syndicate of the same club. *Quien Sabe* was designed by Clinton H. Crane, and was the uncertain element in the contest, as *Ste. Claire's* ability to defeat the other two was admitted. *Ste. Claire*, however, proved herself an easy winner, her percentage being 300, *Mendota* 200, *Quien Sabe* 175, and *Hoosier* 75.

The annual meeting of the council of the Yacht Racing Union of the Great Lakes was held at Rochester, on November 4, 1905. Its chief business was the adoption of small classes which caused the Lake Michigan Yachting Association, a week later, to withdraw from the Union. Lake Michigan yachtsmen desired the Union to recognize the 21-foot class which has been developed on Lake Michigan and which have reached a considerable measure of perfection. As a result of its failure to do so, the Lake Michigan Yachting Association withdrew.

At the annual meeting of the Inter-Lake Yachting Association held in Cleveland in December, John F. Craig, commodore of the Toledo Yacht Club, was elected commodore of the Inter-Lake Yachting Association; F. W. Fletcher, of the Tawas Beach Yachting Association, was chosen vice-commodore, and Dr. C. G. Jennings, rear-commodore of the Detroit Country Club, was elected rear-commodore.



FLEA.

APPENDIX

Officers and Committees

The Lake Superior Canal Semi-Centennial Commission of 1905.

PETER WHITE, of Marquette, *President*.

HORACE M. OREN, of Sault Ste. Marie.

CHARLES MOORE, of Detroit, *Secretary and Treasurer*.

CHIEF MARSHAL,
CHARLES M. HARVEY, C. E.

Citizens Committee of Sault Ste. Marie.

OTTO FOWLE, *Chairman*.

FRANK PERRY, *Mayor of Sault Ste. Marie*.

CHARLES G. CLARKE, *Secretary*.

GENERAL COMMITTEE

Otto Fowle, *Chairman*, George Kemp, Capt. F. G. Root, F. E. Ketchum, Rev. T. R. Easterday, John G. Stradley, James L. Lipsett, Chase S. Osborn, Col. Robt. J. Bates, W. F. Knox, Archdeacon Arthur H. Lord, A. E. Sharpe, C. E. Ainsworth, George P. McCallum, John H. More, John A. Colwell, Fred R. Price, Judge W. M. Snell, W. F. Ferguson, B. Desenberg, V. E. Metzger, Charles G. Clarke, Frank P. Sullivan, A. E. Marriott, Hon. Robt. N. Adams, John H. Roe, William Chandler, William Webster, M. J. Magee, W. L. Murdock, John F. Moloney, Peter T. McKinney, John W. Shine, Clyde W. Hecox, Arthur Cameron, George A. Comb, A. E. Cullis, Albert Forest, Alexander McDonald, Patrick McEvoy, J. H. Moher.

THE SAINT MARY'S CANAL

SUB COMMITTEES

FINANCE.

W. M. Snell, *Chairman*, A. E. Sharpe, A. E. Cullis, F. R. Price, C. G. Clarke.

DECORATIONS.

B. Desenberg, *Chairman*, W. L. Murdock, Col. R. J. Bates, Arthur Cameron, W. F. Ferguson.

ENTERTAINMENT.

F. E. Ketchum, *Chairman*, George P. McCallum, C. E. Ainsworth, Alexander McDonald, W. F. Knox.

MUSIC.

M. J. Magee, *Chairman*, V. E. Metzger, C. W. Hecox, George A. Comb, F. P. Sullivan.

BUILDINGS.

James L. Lipsett, *Chairman*, William Chandler, George Kemp, John H. Roe, Peter T. McKinney.

RECEPTION.

Mayor Frank Perry, Mayor W. H. Plummer, of Sault Ste. Marie, Ont., Judge Joseph H. Steere, Judge F. W. Johnston, Judge Edward O'Connor, Major Robert N. Getty, U. S. A., Adjutant D. A. Lindsay, Colonel Robert J. Bates, General Superintendent Joseph Ripley, Superintendent Donald McKenzie, Assistant Superintendents, R. J. McKeone, Thomas Carrol and R. D. Ashmun, Superintendent J. C. Boyd of Canadian Ship Canal, Collector of Customs H. Plummer of Sault Ste. Marie, Ontario, W. N. Sawyer, F. H. Clergue, Chase S. Osborn, I. R. Edmands, Capt. F. G. Root, Rev. Thos. R. Easterday, John G. Stradley, Rev. Arthur H. Lord, John H. More, John A. Colwell, A. E. Marriott, Hon. Robert N. Adams, William Webster, John F. Moloney, John W. Shine, Albert Forest, Patrick McEvoy, J. H. Moher.

*The Lake Superior Canal
Semi Centennial Commission
of Nineteen Hundred Five
cordially invites you to be present
at the ceremonies celebrating
The Fiftieth Anniversary
of the opening of the
Saint Marys Falls Canal
to be held at
Sault Ste. Marie, Michigan
second and third days of August
1905*

An answer is requested

*Peter White President
Marquette
Horace M. Cron
Sault Ste. Marie
Charles Moore Secretary
Detroit*

FORM OF INVITATION.



VESSELS HELD UP BY ACCIDENT AT THE CANAL.

Vessels Navigating the Great Lakes in 1905.

FROM THE GREAT LAKES RED BOOK, BY PERMISSION OF THE PENTON
PUBLISHING COMPANY.

Adams, Thomas, Detroit, Mich. Steamer *Langham*—Captain, W. M. Mahon; Engineer, Robt. Hains.

Adams Transportation Co., Detroit, Mich., Thomas Adams, Manager. Steamer *Thomas Adams*—Captain, F. B. Cody; Engineer, F. J. McCabe.

Adams, Thomas, Manager Munroe Transportation Co., Detroit. Steamer *Geo. L. Craig*—Captain, D. J. Duncanson; Engineer, S. C. Staley.

Alger, Smith & Co., Detroit. Steamer *Gettysburg*—Captain, Wm. Jagenow; Engineer, Wm. P. Wenner.

Algoma Central Steamship Line, Sault Ste. Marie, Ont., W. C. Barr, Superintendent of Steamship Line. Steamer *Paliki*—Captain, Ben Garvie; Engineer, Jas. Gregg. Steamer *Leaheld*—Captain, W. C. Jordan; Engineer, Jas. Cameron; Steamer *Monks-haven*—Captain, Peter McIntyre; Engineer, Samuel Beatty. Steamer *Theano*—Captain, Geo. W. Pearson; Engineer, Jas. Smith. Steamer *King Edward*—Captain, Wm. Bemrose; Engineer, Geo. Sylvester. Steamer *J. J. Barlum*—Captain, R. C. Erwin. Steamer *Ossifrage*—Captain A. A. Batten; Engineer, J. T. Myler. Steamer *Minnie M.*—Captain I. Woolner; Engineer, Jos. Grimes. Steamer *Philadelphia*—Captain, W. J. McQuade; Engineer, Thos. McMurray. Steamer *Fortune*—Captain, H. A. Pocock; Engineer, F. W. Cornish. Schooner *Agawa*—Captain, Jas. Slammon.

Anchor Line, Erie & Western Transportation Co., Buffalo, N. Y. Steamer *Juniata*—Captain, Edward Martin; Engineer, Wm. Wilson; Steamer *Tionesta*—Captain, Jno. Doherty; Engineer, John Wise. Steamer *India*—Captain, Chas. Christy; Engineer, John Forrester. Steamer *Japan*—Captain, J. J. Lehan; Engineer, Edw. Stevenson. Steamer *Muncy*—Captain, Chas. Nelson; Engineer, F. Rehbaum. Steamer *Codorus*—Capt. L. Wright; Engineer, T. Griffin. Steamer *Mahoning*—Capt. H. O. Miller; Engineer, W. A. Black. Steamer *Schuylkill*—Captain, A. McKenzie; Engineer, John Jordan. Steamer *Susquehanna*—Captain, H. Cronkhite; Engineer, A. Edgar. Steamer *Lehigh*—Captain, F. Bloom; Engineer, Wm. Garrity. Steamer *Clarion*—Captain, Geo. J. Delaney; Engineer, A. E. Welch. Steamer *Alaska*—Captain, Jos. Corcoran; Engineer, John Healy. Steamer *Conemaugh*—Captain, M. Boggan; Engineer, A. B. Fraser. Steamer *Wissahickon*—Captain, E. E. Loadwick; Engineer, Chas. Hull.

Ann Arbor R. R. & S. S. Line, Toledo, O., H. W. Ashley, Gen. Manager. Steamer *Ann Arbor No. 1*—Captain, A. L. Larson; Engineer, B. Aldrich. Steamer *Ann Arbor No. 2*—Captain, C. Frederickson; Engineer, F. Russell. Steamer *Ann Arbor No. 3*—Captain, F. A. Robertson; Engineer, T. J. Harkins.

Argo Steamship Co., Cleveland, E. L. Fisher, Manager. Steamer *Argo*—Captain, Geo. L. Cottrell; Engineer, John Ferguson. Schooner *C. B. Jones*—Captain, John Nelson. Schooner *D. P. Dobbins*—Captain, Harry May.

THE SAINT MARY'S CANAL

- Arnold, Geo. T., Manager, Mackinaw Island, Mich.**—Steamer *Islander*—Captain, John McCarty. Steamer *Sailor Boy*—Captain, Louis Gondocan; Engineer, Chas. Egan.
- Arnold Transit Co., Mackinaw Island, Mich., Geo. T. Arnold, Manager.** Steamer *Chipewa*—Captain, Wm. McCarty; Engineer, John Loveny. Steamer *Elva*—Captain, J. B. Mender; Engineer, John Harrington.
- Ashley & Dustin, Detroit.** Steamer *Frank E. Kirby*—Captain, A. J. Fox; Engineer, Julius Holder.
- Balfour, J. M., Marine City, Mich.** Schooner *Uranus*—Captain, J. M. Balfour.
- Ball, J. E., Buffalo, N. Y.** Steamer *P. P. Miller*—Captain, F. Weinheimer; Engineer, W. C. McDonald.
- Barry Bros. Transportation Co., Chicago, Ill., John Barry, President and General Manager.** Steamer *City of Fremont*—Captain, Thomas Barry; Engineer, Chas. Grobhen. Steamer *F. & P. M. No. 1*—Captain Joseph Lamoreaux; Engineer, James Reid. Steamer *Empire State*—Captain, Thos. Barry; Engineer, Chas. Grobbens.
- Baumhart, C. C., Vermillion, O.** Schooner *M. I. Wilcox*—Captain, Joshua Bailey.
- Becker, W. H., Manager, Columbia Steamship Co., 203 Western Reserve Bldg., Cleveland**—Steamer *Francis Widlar*—Captain, Henry W. Stone; Engineer, J. F. Walsh.
- Becker, W. H., Manager, Lakeland Transportation Co., 203 Western Reserve Bldg., Cleveland.** Schooner *Geo. W. Roby*—Captain, George Mackie.
- Becker, W. H., Manager, Robbins Transportation Co., 203 Western Reserve Bldg., Cleveland.** Steamer *Francis L. Robbins*—Captain, H. G. Haybarger; Engineer, Frank J. Randall.
- Belknap & Phillips, St. Clair, Mich.** Steamer *Maud*—Captain, Charles Weitzman; Engineer, Jas. Crockett. Steamer *Hickox*—Captain, Theobald Emmy; Engineer, Frank Wendling.
- Benham, C. E., Perry-Payne Bldg., Cleveland.** Steamer *H. B. Tuttle*. Schooner *Planet*.
- Beyschlag, Charles, St. Clair, Mich.** Steamer *America*—Captain, Henry Leisk; Engineer, Clinton J. Trumble.
- Bielman, C. F., Detroit, Mich.** Steamer *Florence B.*—Captains, Geo. Riggs, Burt Gallins; Engineers, Jos. Rousseau, John Blauvelt.
- Bigelow Bros. & Walker Co., Chicago.** Steamer *Madagascar*—Captain, Dorin Elliott; Engineer, Chas. Neritur.
- Blodgett, O. W., Bay City, Mich.** Steamer *Zillah*—Captain, Hugh McKenzie; Engineer, James Speir. Steamer *C. H. Bradley*—Captain, James Bennett; Engineer, R. C. Speir. Steamer *Myron*—Captain Shackett; Engineer, N. P. Slater. Schooner *Mary Woolson*—Captain, John Gordon. Schooner *Brightie*—Captain, L. D. Bennett. Schooner *Peshigo*—Captain, F. Dettman. Schooner *B. W. Jenness*. Schooner *Delaware*—Captain, Wm. R. Joung. Schooner *Nellie Redington*—Captain, Wm. Keenan. Schooner *Ogarita*—Captain, E. S. Keenan.
- Blodgett, W. C., Manager, Oswego, N. Y.** Steamer *St. Joseph*—Captain, F. J. Eber; Engineer, James McNally.
- Boekling, G. W., Sandusky, O.** Steamer *A. Wehrle, Jr.*—Captain, A. E. Meyers; Engineer, A. Stein. Steamer *R. B. Hayes*—Captain, A. Witcher; Engineer, F. Stein.
- Boland & Co., John J., Buffalo, N. Y.** Steamer *Eber Ward*—Captain, A. B. Slyfield; Engineer, A. Schnell. Steamer *Geo. Pridgeon*—Captain, John O'Hagan. Steamer *Alcona*—Captain, John Heine; Engineer, Jas. Countryman. Steamer *John M. Nicol*—Captain, M. Petersen; Engineer, Geo. Haig. Steamer *Winnipeg*—Captain, Wm. Hayes; Engineer, Lawrence Brow. Schooner *Alta*—Captain, Jas. Carr. Schooner *J. I. Case*—Captain, A. Mills. Schooner *F. D. Even*—Captain, Hugh O'Hagan.

VESSELS ON THE GREAT LAKES IN 1905

Booth & Co., A., Tribune Bldg., Chicago, Ill. Steamer *America*—Captain, Jacob F. Hector; Engineer, Frank McMillan. Steamer *Bon Ami*—Captain, John Clow; Engineer, Frank Bell. Steamer *Mabel Bradshaw*—Captain, Benj. Lewis; Engineer, D. Smith. Steamer *Caribou*—Captain, J. L. Baxter; Engineer, Joseph Cosford. Steamer *Manitou*—Captain, Jas. Wilson; Engineer, Robert Grierson. Steamer *C. W. Moore*—Captain, Ed. Smith; Engineer, Fred Lee. Steamer *Easton*—Captain, H. Clauson; Engineer, James Evans. Steamer *S. B. Barker*—Captain O. J. Vorous; Engineer, John Matheson. Steamer *Soo City*—Engineer, Al. Krogman.

Boutell Steel Barge Co., Bay City, Mich., W. E. Sutherland, Superintending Engineer. Steamer *Bay City*—Captain, John McCarthy; Engineer, G. A. Miller. Steamer *Bay Port*—Captain, K. A. Jensen; Engineer, Neil Marshall. Steamer *Bay State*—Captain, C. D. Brown; Engineer, A. C. Garting. Steamer *Bay View*—Captain, Gus. E. Atkinson; Engineer, Emerson Harner. Schooner *Bombay*—Captain, Charles Philips. Schooner *Baroness*—Captain, D. McFadyen. Schooner *Brittania*—Captain, W. Wilson. Schooner *Baravia*—Captain, A. Siljander. Schooner *Badger*—Captain, C. Gabrielsen. Schooner *Berkshire*—Captain, Geo. N. McCallum. Schooner *Baden*—Captain, R. Jessen. Schooner *Bath*—Captain, L. Brush.

Boynton, L. R., Manager, Island Transportation Co., St. Ignace, Mich. Steamer *Algoma*—Captain, G. W. Boynton; Engineer, R. McLaughlin. Steamer *Wau-Kon*—Captain, A. Groves; Engineer, Geo. Densmore.

Boynton, L. R., Manager, Mackinac Transportation Co., St. Ignace, Mich. Steamer *Saint Marie*—Captain, R. McDowell; Engineer, Richard Walsh. Steamer *Saint Ignace*—Captain, R. McDowell; Engineer, Joseph Rosseau.

Bradley, M. A., Citizens Bldg., Cleveland. Steamer *Alva*—Captain, M. Mulholland; Engineer, Chris Castle. Steamer *George Stone*—Captain, Paul Howell; Engineer, Clark. Steamer *Pasadena*—Captain, James Buchanan; Engineer, Andrew Chapman. Steamer *Gladstone*—Captain, J. A. Holmes; Engineer, W. W. Tyler. Steamer *M. B. Grover*—Captain, Geo. McGrain; Engineer, Chas. McLean. Steamer *R. P. Ranney*—Captain, Jas. McCannel; Engineer, B. McCabe. Steamer *J. S. Fay*—Captain, M. S. Thompson; Engineer, C. M. Williams. Steamer *S. E. Sheldon*—Captain, A. H. Shafer; Engineer, John Lockhart. Steamer *Fred Kelley*. Schooner *Adriatic*—Captain, Otto A. Rose. Schooner *A. Cobb*—Captain, T. A. Karstan. Schooner *D. P. Rhodes*—Captain, Chas. Anderson. Schooner *Thos. Quayle*—Captain, O. C. Olson. Schooner *Negaunee*—Captain Webb.

Bradwell, Thos., 128 Clark St., Chicago. Schooner *J. B. Wilbor*—Captain, Frank McGregor. Schooner *A. Bradley*—Captain, John Hodell. Schooner *Norman*—Captain, Robert McGregor.

Brainard, W. S., Toledo, O. Steamer *Cherokee*—Captain, James Mara; Engineer, J. S. Robertson. Schooner *Chippewa*—Captain, Jno. Davidson.

Brittain, R. C., Saugatuck, Mich. Steamer *J. S. Crouse*—Captain, L. S. Brittain; Engineer, S. J. Johns. Steamer *Frank Woods*—Captain, Chas. Coates; Engineer, H. Randall. Schooner *L. Carter*—Captain, William Sell.

Brown Steamship Co., Cleveland, H. H. Brown, President. Steamer *Castalia*—Captain, John F. Jones; Engineer, Edward Dempsey.

Buckley, Edward, Manistee, Mich. Steamer *Edward Buckley*—Captain, Charles Gnewuch; Engineer, Ernest Smith.

Calbick & Co., J. A., Sherman St., Chicago. Steamer *P. J. Ralph*—Captain, John Evans; Engineer, Joseph Garlano. Steamer *J. H. Prentice*—Captain, R. F. Evans; Engineer, Jas. McMillan. Steamer *Kalkaska*—Captain, Gustave Gunderson; Engineer, J. H. Frost. Steamer *Oregon*—Captain, Frank Elliott; Engineer, James McHaley. Schooner *Harold*—Captain, Halmer Haggenson. Schooner *Connelly Bros.*—Captain, Carl Johnson. Schooner *Middlesex*—Captain, Paul T. Weimer. Schooner *Halsted*—Captain, John Lundberg. Schooner *R. L. Fryer*—Captain, Emil Christensen. Schooner *Oak Leaf*—Captain, A. T. Hanson. Schooner *S. H. Foster*—Captain, Fred Weimar.

THE SAINT MARY'S CANAL

Calvin Co., The, Garden Island, Ont. Steamer *Simla*—Captain, A. H. Malone; Engineer, R. H. Veech. Steamer *India*—Captain, Chas. Coons; Engineer, T. C. Smith. Steamer *D. D. Calvin*—Captain, H. N. Smith; Engineer, John Kennedy. Schooner *Burma*—Captain, J. Ferguson. Schooner *Ceylon*—Captain, Jos. Achee.

Canada Atlantic Transportation Co., Ottawa, Ont., E. J. Chamberlin, General Manager. Steamer *Ottawa*—Captain, Alex Birnie; Engineer, P. J. Quinn. Steamer *Arthur Orr*—Captain, H. Jaenke; Engineer, J. Murnan. Steamer *Geo. N. Orr*—Captain, William Baxter; Engineer, H. H. Evans.

Canadian Lake & Ocean Navigation Co., Toronto, Can., J. B. Foote, Marine Superintendent. Steamer *Turret Chief*—Captain, M. McPhee; Engineer, Robert Dugid. Steamer *Turret Cape*—Captain, A. McIntyre; Engineer, W. H. Durham. Steamer *Turret Court*—Captain, James Black; Engineer, C. J. McSorley. Steamer *J. H. Plummer*—Captain, G. W. Mackey; Engineer, R. Chalmers. Steamer *D. E. Ames*—Captain E. L. Stephen; Engineer, S. Gillespie. Steamer *H. M. Pellatt*—Captain, G. A. Brian; Engineer, W. Byers.

Canadian Northwest S. S. Co., Ltd., Toronto, Can., 707 Board of Trade Bldg. Steamer *Neebing*—Captain, John Ewart; Engineer, A. F. Foote.

Canadian Pacific Ry. Co., Owen Sound, Ont. Steamer *Manitoba*—Captain, E. B. Anderson; Engineer, Wm. Lewis. Steamer *Athabasca*—Captain, Geo. McDougall; Engineer, W. M. Lockerbie. Steamer *Alberta*—Captain, L. Pyette; Engineer, A. Cameron.

Candler, H. & J. Detroit, J. W. Candler, Manager. Steamer *Panay*—Captain, C. H. Wilson; Engineer, M. J. Kelley. Steamer *Luzon*—Captain, A. E. White; Engineer, Jno. J. Stevens. Schooner *Senator*—Captain, Chas. Anderson.

Carleton, Eugene M., Cleveland, O. Steamer *H. D. Coffinberry*—Captain, Wm. Ferguson; Engineer, Wm. Dorn.

Carpenter, N. D., Detroit, Mich. Steamer *A. L. Hopkins*—Captain, L. E. King; Engineer, Jacob Zeh.

Carrington, E. T., Bay City, Mich. Schooner *Allegheny*—Captain, W. H. Bridges.

Carter, E. D., Erie, Pa. Steamer *Luzon*—Captain, A. E. White; Engineer, John J. Stevens. Steamer *Panay*—Captain, E. H. Wilson; Engineer M. J. Kelley,

Central Canada Coal Co., Ltd., Brockville, Ont. Steamer *Samuel Marshall*—Captain, John Bouchard; Engineer, Henry Cerow.

Chamberlain, C. A., Detroit, Mich. Steamer *Huron City*. Schooner *W. H. Rounds*. Schooner *Bay City*.

Chapman, J. B., 74 Frankfort St., Cleveland, O. Schooner *Selkirk*—Captain, O. E. Bullock.

Charlevoix Lumber Co., Charlevoix, Mich. Steamer *Pine Lake*—Captain, Geo. Wearer; Engineer, Harry Campbell.

Chesbrough, F. B., Emerson, Mich. Steamer *Peshtigo*—Captain, A. G. Lewis; Engineer Chas. Schumroch. Steamer *Kensington*—Captain, W. M. Brooks; Engineer, Frank Goodwin. Steamer *Kanawha*—Captain, John Johnson; Engineer, W. S. Alexander. Steamer *Kennebec*—Captain, Geo. Seifert; Engineer, H. A. Wentworth.

Chicago & Muskegon Trans. Co., Muskegon, Mich. (Barry Muskegon Line.) Steamer *Chas. H. Hackley*. Steamer *Alice Stafford*.

Chicago, Saugatuck & Douglas Transportation Co., Saugatuck, Mich., John F. Henry, Manager. Steamer *Chas. McVea*—Captain, Wm. Turnbull; Engineer, Henry Bauder. Steamer *Saugatuck*—Captain, John Campbell; Engineer, Samuel Shaer.

Cleveland & Buffalo Transportation Co., Cleveland, T. F. Newman, Manager. Steamer *City of Erie*—Captain, H. McAlpine; Engineer, J. Y. Rendall. Steamer *City of Buffalo*—Captain, W. H. Smith; Engineer, Chas. Lorimer.

VESSELS ON THE GREAT LAKES IN 1905

Comstock & Sinclair, Duluth, Minn. Steamer *O. T. Flint*—Captain, John Randal; Engineer, Robt. Cameron. Steamer *Simon Langcell*—Captain, J. A. Stewart; Engineer, Geo. Cook. Schooner *Arenac*—Captain, Wyman Powers. Schooner *W. K. Moorc*—Captain, Burt Warwick. Schooner *Interlaken*—Captain, R. Taylor.

Conlon, J. & T., Thorold, Ont. Steamer *Erin*—Captain, P. Sullivan; Engineer, John Milne. Schooner *F. L. Danforth*—Captain, B. McIntyre.

Corning, Gurdon, Saginaw, Mich. Schooner *Our Son*—Captain, Geo. W. Ryan.

Corrigan, James, Managing Owner, 719 Perry-Payne Bldg., Cleveland, H. J. Reynolds, Superintending Engineer. Steamer *Bulgaria*—Captain, N. L. Miner; Engineer, H. S. Haynes. Steamer *Australia*—Captain, R. E. Donaldson; Engineer, John Radford. Steamer *Caledonia*—Captain, J. N. Nicholson; Engineer, F. Craig. Steamer *Italia*—Captain, A. McGregor; Engineer, E. Butler. Steamer *Iron Age*—Captain, J. H. McCormick; Engineer, E. Woodhall. Steamer *Progress*—Captain Thos. J. Brady; Engineer, John Maxwell. Barge *Amazon*—Captain, Jas. O'Flynn; Engineer, John Sandvich. Barge *Polynesia*—Captain, A. D. McKay. Schooner *Ashland*—Captain, Arthur Adams. Schooner *Tasmania*—Captain, Wm. Radford. Schooner *Iron Cliff*—Captain, Martin Kurth. Schooner *J. M. Hutchinson*—Captain, J. C. Hays. Schooner *M. W. Page*—Captain, Harey Peter.

Corrigan, John, 719 Perry-Payne Bldg., Cleveland. Steamer *Aurania*—Captain, A. H. Gain; Engineer, B. Henry.

Cranage, S. P., Bay City, Mich. Steamer *Thomas Cranage*—Captain, John S. McNeill; Engineer, William Nerrter. Steamer *City of Paris*—Captain, Washington Moore; Engineer, David N. Humphrey.

Crosby Transportation Co., Muskegon, Mich. Steamer *Nyack*—Captain, John H. Huff; Engineer, Karl Hallberg. Steamer *Naomi*—Captain, Thos. Traill; Engineer, B. J. Hopkins.

Crosthwaite, J. L., 202 Main St., Buffalo. Steamer *Georgetown*. Schooner *Ben Harrison*. Schooner *Buckeye State*.

Cummings, M. J., Oswego, N. Y. Steamer *Western Star*—Captain, P. J. Griffin; Engineer, Martin Griffin. Steamer *C. S. Parnell*—Captain, Wm. Griffin; Engineer, S. Mallon.

Dauble, E. B., Tonawanda, N. Y. Steamer *Olga*—Captain, Edward H. Prill.

Davidson, James, West Bay City, Mich. Steamer *Amazonas*—Captain, E. Smades; Engineer, W. J. Downing. Steamer *Bermuda*—Captain, A. W. Henderson; Engineer, John Doe. Steamer *Cartagena*—Captain, W. L. Montgomery; Engineer, Harry E. L'Hote. Steamer *Orinoco*—Captain, Chas. Ainsworth; Engineer, Jos. D. Gonyou. Steamer *Panama*—Captain, Warren C. Jones; Engineer, John W. Clark. Steamer *Rappahannock*—Captain, Geo. C. Stevenson; Engineer, E. W. Tilley. Steamer *Sacramento*—Captain, Hugh Stevenson; Engineer A. G. Olmsted. Steamer *Shenandoah*—Captain R. O'Connor; Engineer, Geo. M. Wise. Steamer *Venezuela*—Captain E. J. Starkey; Engineer, B. Hansen. Schooner *Chieftain*—Captain, Martin Johnson. Schooner *Grampian*—Captain, John Henderson. Schooner *Granada*—Captain, J. T. Lennon. Schooner *Matanzas*—Captain, D. G. Gordon. Schooner *Paisley*—Captain, Frank Moore. Schooner *Pretoria*—Captain, Charles Smart. Schooner *Montezuma*—Captain, W. H. Hargrove.

Deseronto Navigation Co., Deseronto, Ont., John Harrison Superintending Engineer. Steamer *Resolute*—Captain, John Gowan; Engineer, John Harrison. Steamer *Reliance*—Captain, James Dougherty; Engineer, John Toppings. Steamer *Ella Ross*—Captain, D. B. Christie; Engineer, M. J. McFaul. Steamer *Deseronto*—Captain, M. Palmateer; Engineer, Stanley LeRue. Steamer *Rescue*—Captain, P. J. Lynch; Engineer, Owen Flood. Steamer *Armenia*—Captain, Albert Bamhart; Engineer, Michael Toppings. Steamer *Ranger*—Captain, Howard Burnip; Engineer, Wm. Stanhope. Steamer *Arctic*—Captain, W. J. Daly; Engineer, Thos. Lynch. Schooner *Recruit*—Captain, Daniel McVicker.

THE SAINT MARY'S CANAL

Detroit, Belle Isle & Windsor Ferry Co., Detroit, Mich., Nicholas Huff, Superintending Engineer. Steamer *Victoria*—Captain, Peter Williams; Engineer, Walter Merrill. Steamer *Excelsior*—Captain, Archie Bain; Engineer, S. J. Merrill. Steamer *Sappho*—Captain, John Demstead; Engineer, Wm. Wilkie. Steamer *Garland*—Captain, Michael McCune; Engineer, James Foster. Steamer *Promise*—Captain, Damise Jacques; Engineer, Albert E. Garland. Steamer *Pleasure*—Captain, Robt. E. Ferguson; Engineer, Hugh McAlpine. Steamer *Columbia*—Captain, John Wilkinson; Engineer, Henry Free. Steamer *Pappoose*—Captain, J. H. Halcro; Engineer, Wm. Hyde.

Detroit & Buffalo Steamboat Co., Detroit, Mich., W. C. McMillan, Manager. Steamer *Eastern States*—Captain, Duncan McLachlan; Engineer, J. P. Wells. Steamer *Western States*—Captain, Frank G. Stewart; Engineer, A. Carter.

Detroit & Cleveland Navigation Co., Detroit, Mich., W. C. McMillan, General Manager. Steamer *City of Detroit*—Captain, Alex J. McKay; Engineer, Wm. Huff. Steamer *City of Cleveland*—Captain, Archibald McLachlan; Engineer, John Hall. Steamer *City of Alpena*—Captain Mathew Lightbody; Engineer, A. Phillipa. Steamer *City of Mackinac*—Captain, Fred Simpson; Engineer, Wm. McDonald. Steamer *State of Ohio*—Captain, A. H. McLachlan; Engineer, D. Donaldson. Steamer *City of the Straits*—Captain, S. O. Robinson; Engineer, Wm. Steen. Steamer *State of New York*.

Donely, W. E., Saginaw, Mich. Schooner *A. C. Maxwell*—Captain, J. N. Garlock. Schooner *Katie Brainard*—Captain, W. H. Haggerty.

Dorrington, John, 62 Spruce St., Detroit. Schooner *Maria Martin*—Captain, John Dorrington.

Downey & Co., Robert, Oswego, N. Y. Steamer *Monteagle*—Captain, Geo. E. Talbot; Engineer, Wm. S. Brown.

Drake, M. M., Buffalo, N. Y. Steamer *Chili*—Captain, W. F. Sutherland; Engineer, A. P. Stewart.

Drieske & Co., Louis F., 146 Claybourn Place, Chicago. Schooner *Ralph Campbell*—Captain, Peter Hansen.

Dunham, R. J., 381 N. Halsted St., Chicago. Steamer *Ravenscraig*—Captain, Wm. Anderson; Engineer, E. B. Purvis. Steamer *City of London*—Captain, Arnold Green; Engineer, J. R. Bennett. Steamer *Black Rock*—Captain, J. F. Hansen; Engineer, Frank Reilly.

Dunkley-Williams Co., 7 Rush St., Chicago, Ill., G. P. Cory, General Manager. Steamer *Iroquois*—Captain, Frank Swails; Engineer, J. O. Adams. Steamer *City of South Haven*—Captain, Jos. Shea; Engineer, M. F. Madden. Steamer *Glenn*. Steamer *City of Kalamazoo*. Steamer *H. W. Williams*. Steamer *Petoskey*.

Duluth Mining & Milling Co., Duluth, Minn. Schooner *Clement S.*

Eddy, Chas. A., Bay City, Mich. Steamer *Langell Boys*—Captain, A. M. Goodwin; Engineer, Wm. King. Schooner *J. B. Comstock*—Captain, Chas. Loynes. Schooner *Abram Smith*—Captain, Louis Briggs.

Eddy-Shaw Transit Co., Bay City, Mich. Steamer *City of Bangor*—Captain, A. J. Mahon; Engineer, John Conroy. Steamer *Penobscot*—Captain, Wm. A. William; Engineer, E. A. Hoffman. Steamer *Selwyn Eddy*—Captain, G. D. Tulian; Engineer, W. P. Hoffman. Steamer *E. C. Pope*—Captain, L. H. Powell; Engineer, W. O. Anderson.

Ellis, Charles H., Managing Owner, Milwaukee, Wis. Care John Schroeder Lumber Co. Steamer *Hilton*—Captain, Manning Kilton; Engineer, Stephen Tessar.

Elphicke & Co., C. W., 6 Sherman St., Chicago. Steamer *W. L. Brown*—Captain, W. B. McDonald; Engineer, W. H. Walder. Steamer *Mary C. Elphicke*—Captain, Jos. Matthews; Engineer, S. C. Davis. Steamer *G. Watson French*—Captain, John Massey; Engineer, D. W. Rice. Steamer *Phenix*—Captain, Ed. C. Vanpatten; Engineer, Wm. Frazer.

VESSELS ON THE GREAT LAKES IN 1905

Engelking, Geo., Chicago, Ill. Steamer *T. S. Christie*—Captain, P. Larsen; Engineer, W. J. Merrill.

Erickson, Erick, Racine, Wis. Schooner *J. A. Holmes*—Captain, James Erickson.

Erickson, Captain James, 471 17th Ave., Milwaukee, Wis. Schooner *Lake Forest*—Captain, James Erickson.

Fairgrieve & Co., J. R., Hamilton, Ont. Steamer *Arabian*—Captain, I. V. Trowell; Engineer, W. H. Cunningham.

Follette, W. H., Tonawanda, N. Y. Steamer *Jesse H. Farwell*—Captain, David Curran; Engineer, A. E. Rhodes.

Forster, C. F., care Forster Lumber Co., Milwaukee, Wis. Steamer *J. W. Westcott*—Captain, H. L. Wanwig; Engineer, Wm. Martin.

Hope Transportation Co., Detroit, Mich., Francombe, J. A., Manager. Steamer *W. R. Stafford*—Captain, W. P. Rattray; Engineer, John A. Francombe. Schooner *Ed. McWilliams*—Captain, A. R. Sharow.

Fullum, Walter K., 572 Front Ave., Buffalo, N. Y. Schooner *Jas. G. Blaine*—Captain, Walter K. Fullum.

Galvin, Michael, Marine Bank Bldg., Buffalo, N. Y. Steamer *Arabia*. Steamer *Conestoga*. Steamer *Delaware*. Steamer *Juniata*. Steamer *Montana*. Steamer *Vanderbilt*.

Gilchrist, F. W., Alpena, Mich. Steamer *Viking*. Steamer *S. C. Hall*. Schooner *Vinland*. Schooner *Sam Flint*. Schooner *Nellie Mason*.

Gilchrist Transportation Company, Cleveland, O., J. C. Gilchrist, President; J. D. Mitchell, Superintending Engineer. Steamer *Case*—Captain, W. W. Shorkey; Engineer, Luke J. Mannion. Steamer *City of Genoa*—Captain, Pierre Bouille; Engineer, Wm. Brake. Steamer *City of Naples*—Captain, W. H. Landgraf; Engineer, Peter Mullen. Steamer *City of Rome*—Captain, A. W. Holmes; Engineer, Peter Britz; Steamer *Colonial*—Captain, Joe Dobson; Engineer, J. W. Douglass. Steamer *Cumberland*—Captain, John Lohr; Engineer, Daniel Flint. Steamer *C. A. Eddy*—Captain, D. B. Elsey; Engineer, Robt. Elliott. Steamer *C. W. Elphicke*—Captain, J. B. Lyons; Engineer, David L. Brown. Steamer *Gilchrist*—Captain, G. L. Cudeback; Engineer W. T. Schwacofer. Steamer *J. C. Gilchrist*—Captain, E. L. Ennes; Engineer, John Parks. Steamer *F. W. Gilchrist*—Captain, Chas. Hahn; Engineer, Henry Jesson. Steamer *C. C. Hand*—Captain, Albert Swanson; Engineer, H. W. Barden. Steamer *John Harper*—Captain, Wm. McAlpine; Engineer, A. L. Millett. Steamer *F. W. Hart*—Captain, Chas. Hinslea; Engineer, John Fritz. Steamer *Frank J. Hecker*—Captain, W. G. Stewart; Engineer, F. A. Francombe. Steamer *Helena*—Captain, Nelson Brown; Engineer, R. O. Butler. Steamer *Hiawatha*—Captain, A. Vansler; Engineer, Geo. R. Eaton. Steamer *R. L. Ireland*—Captain, J. P. Minskey; Engineer, C. N. Albee; Steamer *Jupiter*—Captain, W. G. Rogers; Engineer, C. J. Erickson. Steamer *Lake Shore*—Captain, Duncan Buie; Engineer, Geo. Zanger. Steamer *Lansing*—Captain, Chas. S. Ellis; Engineer, Frank Hawthorne. Steamer *Mars*—Captain, R. J. Walder; Engineer, H. J. Hawthorne. Steamer *Massachusetts*—Captain, A. D. Vorce; Engineer, Wm. O. Butler. Steamer *Maytham*—Captain, John Smith; Engineer, Peter Schackett. Steamer *Mecosta*—Captain, M. J. Madden; Engineer, John Conley. Steamer *Merida*—Captain, Ed. Mooney; Engineer, James Balfour. Steamer *Merrimac*—Captain, Fred Bertrand; Engineer, Frank Quелlette. Steamer *Neosho*—Captain, Chas. Caughell; Engineer, Lewis Fittinger. Steamer *Neptune*—Captain, F. A. Dupuy; Engineer, Thos. Burns. Steamer *Neshoto*—Captain, John Dunn; Engineer, Gustav Rogers. Steamer *Nimick*—Captain, James Lowes; Engineer, D. M. Foster. Steamer *E. W. Oglebay*—Captain, Stanton Markle; Engineer, A. L. Hatch. Steamer *Olympia*—Captain, S. E. Philip; Engineer, Peter Lamar. Steamer *Osborne*—Captain Alex Clark; Engineer, R. H. Revnolds. Steamer *R. R. Rhodes*—Captain, S. S. Stewart; Engineer, Roman Shinsky. Steamer *Geo. H. Russell*—Captain, C. T. Gunderson; Engineer, Henry L. Mitchell. Steamer *Saturn*—Captain, Geo. White; Engineer, E. Harris. Steamer *E. N. Saunders*—Captain, Peter Full; Engineer A. F. Hogle. Steamer *R. E. Schuck*—Captain, F. A. Goodell; Engineer, Joseph Berney. Steamer *Siberia*—Captain, Ed. Benham; Engineer, L. T. Annis. Steamer

THE SAINT MARY'S CANAL

H. S. Sill—Captain, J. C. Byers; Engineer, Clem Clark. Steamer *Steel King*—Captain, Ben Mosher; Engineer, Bert Beauchamp. Steamer *Tacoma*—Captain, Paul Gutch; Engineer T. J. Fowler. Steamer *C. Tower*—Captain, C. R. Baker; Engineer, Otto Elsholz. Steamer *Uranus*—Captain, W. F. Delaney; Engineer, T. F. Birch. Steamer *Vega*—Captain, A. M. Williams; Engineer Thos. Harringer. Steamer *Venus*—Captain, Benson Fox; Engineer, Martin Mitchell. Steamer *Vermilion*—Captain, B. F. Ogden; Engineer, T. F. Higgins. Steamer *Volunteer*—Captain, Richard Call; Engineer, Peter Robertson. Steamer *Vulcan*—Captain, W. G. Slackford; Engineer, Robert Dornan. Steamer *Perry G. Walker*—Captain, Claud Ennes; Engineer, John Seymour. Steamer *Wallula*—Captain, Henry Hinslea; Engineer C. T. Martin. Steamer *C. W. Watson*—Captain, A. M. Shepard; Engineer, R. G. Mabury. Steamer *J. L. Weeks*—Captain, M. H. Clark; Engineer, T. A. Francombe. Steamer, *D. C. Whitney*—Captain, L. Miskin; Engineer, F. O. Burrows. Steamer *D. M. Whitney*—Captain, W. C. Butts; Engineer, Chas. A. Francombe. Steamer *Geo. Williams*—Captain, H. Bennett; Engineer, Chas. Burns. Steamer *Lewis Woodruff*—Captain, Thos. Gibson; Engineer, A. MacLaren. Steamer *A. P. Wright*—Captain, Frank Ott; Engineer, Philip C. Mayer. Steamer *Yakima*—Captain, J. S. Jones; Engineer, Walter Paterson. Barge *Antrim*—Captain, Ed Lohr; Engineer, Wm. Marshall. Barge *Tyrone*—Captain, Geo. Richards; Engineer, Geo. Riffin. Schooner *M. S. Bacon*—Captain, Henry Elbe. Schooner *F. A. Georger*—Captain, Wm. Ziem. Schooner *Magnetic*—Captain, Sam Minsky. Schooner *B. W. Parker*—Captain, Mathew Ross. Schooner *Twin Sisters*—Captain, A. A. Monroe. Schooner *Yukon*—Captain, Louis Bangs.

Glenn, Capt. J., Detroit, Mich. Schooner *Fulton*—Captain, J. Glenn.

Goodrich Transportation Co., Chicago, Ill., W. E. Elliott, Superintending Engineer. Steamer *Christopher Columbus*—Captain, Chas. E. Moody; Engineer, G. McLaughlin. Steamer *Virginia*—Captain, E. E. Redner; Engineer, G. P. Roth. Steamer *Indiana*—Captain, E. Taylor; Engineer, Wm. Nicholas. Steamer *City of Racine*—Captain, J. A. Wilson; Engineer, Felix Neider. Steamer *Iowa*—Captain, John Raleigh; Engineer, Julius Bushman. Steamer *Atlanta*—Captain, C. McCauley; Engineer, Joseph Peroutka. Steamer *Georgia*—Captain, Chas. Bronson; Engineer, C. H. Bon. Steamer *Shoboygan*—Captain, A. E. Johnson; Engineer, A. Galbraith. Steamer *Chicago*—Engineer, Thos. Dorey.

Grace Harbor Lumber Co., Detroit. Steamer *Tempest No. 2*—Captain, Wm. P. Quinlan; Engineer, Robt. Craig. Schooner *C. G. King*—Captain, Jas. Hamilton.

Graham & Morton Transportation Co., Chicago. Steamer *City of Benton Harbor*—Captain, Albert Simons; Engineer, Louis Sebastian. Steamer *Holland*—Captain, John Stewart; Engineer, R. M. Oliver. Steamer *Puritan*—Captain, Wm. Boswell; Engineer, James Stewart. Steamer *Argo*—Captain, H. C. Page; Engineer, W. S. Bradley. Steamer *City of Chicago*—Captain, W. J. Russell; Engineer, Wm. F. Johnson.

Grand Trunk Car Ferry Line, Milwaukee, Wis., E. G. Crosby, Manager. Steamer *Grand Haven*—Captain, Chas. A. Lyman; Engineer, Eugene Scott.

Grand Trunk Ry. Co., Windsor, Ont., Captain W. F. McGregor, Superintendent of Fleet, Box 426. Steamer *Lansdowne*—Captains, F. D. Forrest, Jno. Jackson; Engineer, Jos. Taylor. Steamer *Great Western*—Captains, M. Bausetto, A. Baillorgeon; Engineer, Wm. Belsom. Steamer *Huron*—Captains, Hy Oldenburg, O. Lalonde; Engineer, Jos. Ladds.

Gray Transportation Co. (Ralph Gray), Cleveland. Steamer *Arizona*—Captain, W. R. Neal; Engineer, Chas. Pierce. Schooner *Scotia*—Captain, Wallace Allen. Schooner *Plymouth*—Captain, Chas. Jorgenson.

Green, Adolph, Green Bay, Wis. Steamer *Geo. Burnham*—Captain, Louis Strohon; Engineer, Chas. Elliott. Schooner *L. C. Baldwin*.

Green Bay Vessel Co., Green Bay, Wis. Steamer *Orion*—Captain, G. H. Scott; Engineer, C. W. Adler.

Green, John, 402 W. Ferry St., Buffalo, N. Y. Steamer *Lewiston*—Captain, Samuel Thurston; Engineer, James Green.

VESSELS ON THE GREAT LAKES IN 1905

Greenwood, John W., Port Colborne, Ont. Steamer *W. J. Carter*. Schooner *Thos. Dobbie*.

Groh, Oley, Sheboygan, Wis. Schooner *Quickstep*—Captain, Wm. Lorenz.

Hackley Transportation Co., 2 Rush St., Chicago, C. F. Clugston, General Manager. Steamer *Hackley*—Captain, Miles E. Barry; Engineer, Adolph Zietch.

Hahn, J. N., Managing Owner, Cleveland. Steamer *Jas. H. Shrigley*—Captain, J. E. Rathbun; Engineer, Phil Canton. Schooner *Shawnee*—Captain, James Kobel.

Hall Coal Co., Geo., Ogdensburg, N. Y. Steamer *John C. Howard*—Captain, D. Hourigan; Engineer, D. M. Doyle. Steamer *John Rugee*—Captain, R. FitzGerald; Engineer, A. E. Cline. Steamer *Hecla*—Captain W. A. Russell; Engineer, R. G. Jardin. Schooner *W. A. Sherman*—Captain, M. Hourigan. Schooner *Bolivia*—Captain, Ed. W. Maloney. Schooner *Mary Lyon*—Captain, S. LaFlam. Schooner *Jennie Matthews*—Captain, F. D. Lurn. Schooner *Black Diamond*—Captain, John Gokey. Schooner *Mohawk*—Captain, Alfred H. Michael. Schooner *Onondaga*—Captain, Alfred deRepentigiev. Schooner *E. P. Beals*—Captain, Henry Newhouse. Schooner *Argosy*—Captain, John Ganthier.

Hall, Captain J. B., 202 Main St., Buffalo, N. Y. Steamer *New Orleans*—Captain, J. H. Coleman; Engineer, P. F. Coniff.

Halloway, A. I., Buffalo, N. Y. Steamer *R. A. Burton*.

Hanna, D. R., Manager, Mahoning Steamship Co., Cleveland, Douglas Brews, Superintending Engineer for all D. R. Hanna Fleets. Steamer *L. C. Hanna*. Steamer *P. Stackhouse*.

Hanna, D. R., Manager, Franklin Transportation Co., Cleveland. Steamer *Wm. F. Fitch*—Captain, B. W. Landfair; Engineer, Grant Donaldson. Schooner *A. Maitland*—Captain, Varn Hosner.

Hanna, D. R., Manager, Calumet Transportation Co., Cleveland. Steamer *Geo. A. Flagg*—Captain, A. McArthur; Engineer, Wm. Miller. Steamer *R. S. Warner*—Captain, P. L. Millen; Engineer, August Romzick. Schooner *A. W. Thompson*—Captain, M. Anderson. Schooner *S. D. Warriner*—Captain, W. A. Black.

Harlow, W. J., 706 Madison St., Toledo, O. Steamer *Harlow*—Captain, Wm. J. Harlow; Engineer, M. McNamara.

Harrow, J. P., Algonac, Mich. Schooner *Nelson Bloom*—Captain, J. P. Harrow.

Hart Steamboat Line, Green Bay, Wis. Steamer *Fannie C. Hart*—Captain, Joe Carrigon. Steamer *Eugene C. Hart*—Captain, Chas. Graves; Engineer, Chas. Dennis. Steamer *Harriet A. Hart*—Captain, C. B. Hart; Engineer, Ed Donahue.

Hartman, Adam, Tonawanda, N. Y. Schooner *Buffalo*—Captain, Thomas McDermott.

Hawgood, Henry A., Perry-Payne Bldg., Cleveland. Steamer *Wisconsin*—Captain, Geo. Robarge; Engineer, Wm. R. Stewart. Steamer *Umbria*—Captain, C. M. Saph; Engineer, Anthony Ward. Steamer *H. B. Hawgood*—Captain, Thos. C. Ellis; Engineer, S. H. Roswell. Steamer *Etruria*—Captain, J. D. Greene; Engineer, R. B. Buchanan. Steamer *S. S. Curry*—Captain, John Hollingshead; Engineer, Geo. P. Smith.

Hawgood, W. A. & Co., Perry-Payne Bldg., Cleveland. Steamer *Edwin F. Holmes*—Captain, Jas. Owen; Engineer, John Chapman. Steamer *Bransford*—Captain, C. C. Balfour; Engineer, Alex B. Wilson. Steamer *J. M. Jenks*—Captain, M. Tinney; Engineer, Thos. Braund. Steamer *Harold B. Nye*—Captain, A. B. Keller; Engineer, C. W. Stedman; Steamer *Iosco*—Captain, N. Gonyau; Engineer, Frank W. Gordon. Schooner *Olive Jeanette*—Captain, W. A. Serles.

Havens, W. H., Ashtabula, O. Steamer *Geo. B. Raser*—Captain, Sidney A. Cline; Engineer, E. Ball.

THE SAINT MARY'S CANAL

Havey, Hugh R., Manager, Foot Randolph St., Detroit. (C. W. Kotcher, Owner.)
 Steamer *Saginaw*—Captain, A. Kotcher; Engineer, A. Hayward. Steamer *J. H. Pauly*—Captain, A. H. Shafer; Engineer, John Smith. Schooner *Kelley*—Captain, A. H. Trosny. Schooner *Corry*—Captain, John Allen. Schooner *Grover*—Captain, Wm. Shafer.

Helm, Arthur C., Chicago, Manager for Estate W. M. Egan, Decased., Frank Keating, Superintending Engineer, 2519 Prairie St., Milwaukee. Steamer *Philip D. Armour*—Captain, F. D. Chamberlin; Engineer, Frank Krating. Steamer *John Plankinton*—Captain, L. A. Rand; Engineer Chas. Benschneider. Steamer *Wiley M. Egan*—Captain, J. P. Saph; Engineer, C. H. Drein. Steamer *R. P. Fitzgerald*—Captain, Fred Howe; Engineer, T. Carlson.

Hines Lumber Co., Edward, Chicago. Steamer *L. Edward Hines*—Captain, Jas. Carr; Engineer, Christian Smith. Steamer *L. L. Barth*—Captain, D. R. Parsons; Engineer, Chas. Jubenville. Steamer *Trude R. Wiehe*—Captain, Geo. D. Ryan; Engineer, Frank Nold. Steamer *Oscoda*—Captain, Wm. McGannon; Engineer, Chas. McIlray. Steamer *Cormorant*—Captain, K. McKenzie; Engineer, Theo. Brinker. Steamer *Louis Pahlow*—Captain, W. J. McKay; Engineer, C. A. Perry. Steamer *I. W. Stephenson*—Captain, Dan Wall; Engineer, Jos. Nold. Steamer *W. H. Sawyer*—Captain, Canartney; Engineer, Reuben Ellis. Schooner *Wayne*—Captain, Eli Jacques. Schooner *S. E. Marvin*—Captain, Fred Anderson. Schooner *Nirvana*—Captain, John Hudson. Schooner *Galatea*—Captain, Alfred Germain. Schooner *Alice B. Norris*—Captain, Horace Acree. Schooner *Helvetia*—Captain, J. Jennings. Schooner *D. L. Filer*—Captain, Jos. S. Rose. Schooner *Ida Corning*—Captain, P. H. Edgar. Schooner *Delta*—Captain, John Baker. Schooner *City of Chicago*—Captain, Wm. Rose. Schooner *Lizzie A. Law*. Schooner *A. C. Tuxberry*. Schooner *C. E. Redfern*.

Hitchcock, Alex, Port Clinton, O. Steamer *Leland*.

Hoeft, Paul H., Rogers City, Mich. Steamer *C. H. Starke*—Captain, Wm. Crosby; Engineer, John Lacey.

Holland & Graves, Buffalo, N. Y. Steamer *Mohegan*—Captain, Jas. Cunningham; Engineer, Wm. Schumacher. Schooner *Mingoc*—Captain, Jas. Robertson. Schooner *Aloha*—Captain, Jas. Robertson. Schooner *John A. Francomb*—Captain, Wm. McCarter. Schooner *Annabell Wilson*—Captain, Wm. McCarter.

Homegardner, John, Jr., Sandusky, O. Steamer *St. Mary H.*—Captain, Hugo Steiert; Engineer, Geo. Moore. Steamer *City of Rossford*—Captain, John Steible; Engineer, F. Mayer.

Houghton, H., 806 Hammond Bldg., Detroit. Steamer *H. Houghton*—Captain, W. G. Deeg. Steamer *Mary*—Captain, Louis Allor; Engineer, Asal Grooms.

Howard Transportation Co., Chicago, Ill. Schooner *Dewey*—Captain, J. Chatterton. Schooner *O. J. Hale*—Captain, A. Howard.

Hurley, T., 149 Jefferson Ave., Detroit, Mich. Steamer *Majestic*—Captain, M. G. McIntosh; Engineer, Geo. Francombe. Schooner *Mystic Star*—Captain, Thos. O'Brien. Schooner *Mongaunon*—Captain, H. H. Pope.

Hutchinson & Co., Perry-Payne Bldg., Cleveland. Steamer *William A. Paine*—Captain, W. P. Benham; Engineer, P. F. Lyons. Steamer *Martin Mullen*—Captain, S. B. Massey; Engineer, W. J. Swaine. Steamer *J. T. Hutchinson*—Captain, James Murphy; Engineer, Geo. Blauvelt. Steamer *City of Glasgow*—Captain, J. M. Shackett; Engineer, Anton Rudd. Steamer *Hesper*—Captain, C. H. Heaton; Engineer, W. Smith. Schooner *Abyssinia*—Captain, T. K. Woodward. Schooner *Emma C. Hutchinson*.

Indiana Transportation Co., Michigan City, Ind. Steamer *Indianapolis*—Captain, McLean; Engineer, Chas. Warwick. Steamer *Mary*—Captain, McLean; Engineer, Chas. Warwick.

Ionia Transportation Co., Detroit, Mich., F. M. Thompson, Manager. Steamer *Ionia*—Captain, Jerry T. Rose; Engineer, M. M. Hill.

International Paper Co., Niagara Falls, N. Y. Steamer *St. Louis*.

VESSELS ON THE GREAT LAKES IN 1905

- Jackson, George D., Bay City, Mich.** Schooner *G. K. Jackson*—Captain, Curtis Jackson.
- Jean, August, 31 Greenwood Place, Buffalo.** Steamer *Alcona*—Captain, John C. Heine; Engineer, Jas. Countryman. Schooner *S. J. Tilden*—Captain, John Welch.
- Jenkins, C. O., Manager, Mack Steamship Co., Rockefeller Bldg., Cleveland.** Steamer *Wm. H. Mack*—Captain, R. E. Byrns; Engineer, C. J. Church. Steamer *F. B. Squire*—Captain, Wm. Smith; Engineer, Wallace Tomly.
- Jenkins, C. O., Manager, Ohio Steamship Co., Rockefeller Bldg., Cleveland.** Steamer *James P. Walsh*—Captain, A. J. Greenley; Engineer, Wm. H. Kennedy.
- Karr, J. U., 169 River St., Cleveland.** Schooner *Donaldson*. Schooner *Fanny Neil*—Captain, W. A. Fetterly. Schooner *Manitou*—Captain, Thompson.
- Kelly Island Lime & Transport Co., Cleveland, E. F. Thorpe, Marine Superintendent.** Steamer *Albert Y. Gowen*—Captain, C. Smith; Engineer, D. Manns. Steamer *Alvah S. Chisholm, Jr.*—Captain, Dan Henderson; Engineer, T. Mahoney. Steamer *Norma*—Captain, W. P. Wheeler; Engineer, Lewis F. Miller. Schooner *David Moran*—Captain, J. M. Robinson. Barge (building)—Captain, A. Brandt. Barge (building)—Captain, Wm. Holly.
- Keith & Co., J. G., Chicago, Ill.** Steamer *Ira H. Owen*—Captain, J. Hulligan; Engineer Hugh Buchanan. Steamer *Parks Foster*—Captain, John Isbester; Engineer, M. Crisp.
- Kelley, W. N., Travers City, Mich.** Steamer *Emma Thompson*—Captain, H. Bennett; Engineer, Frank Kimber. Schooner *Ford River*—Captain, L. Madsen.
- Kinsman Transit Co., Cleveland, O., H. Steinbrenner, Manager.** Steamer *Henry Steinbrenner*—Captain, Harry Gunderson; Engineer, Otto E. Hoffman. Steamer *Anna C. Minch*—Captain, L. B. Cummings; Engineer, C. R. Price. Steamer *Philip Minch*—Captain, Jos. Lampoh; Engineer, W. H. Miller.
- Kirker, Fred, Managing Owner, Bay City, Mich.** Schooner *Wm. Brake*.
- Kitzinger, Gus, Manistee, Mich.** Steamer *Pere Marquette 2*—Captain, Peter McGuigan; Engineer, Henry O'Connell. Steamer *Pere Marquette 3*—Captain, Horace L. Sanders; Engineer, Ed. Hinelne. Steamer *Pere Marquette 4*—Captain, Chas. Moody; Engineer, Geo. H. Williams. Steamer *John Schroeder*—Captain, Wm. J. Carter; Engineer, W. D. Cochrane. Steamer *Mark B. Covell*—Captain, Ed. D. Skeels; Engineer, Ira P. McMillan.
- Koch, C. McG., Sandusky, O.** Steamer *Annie Laurie*—Captain, D. O. Lockhart; Engineer, Jerry Shampaign.
- Kohn, Ben C., Bay City, Mich.** Schooner *Harvey Bissell*—Captain, H. A. Pierce.
- Kroos, Julius, Sheboygan, Wis.** Steamer *Susie Chipman*—Captain, N. A. Gunderson; Engineer, Robert Edwards.
- La Croix, Gilbert, Mt. Clemens, Mich.** Steamer *A. D. Hayward*—Captain, Joseph Inches; Engineer, Geo. Tromble. Steamer *Mascotte*—Captain, Gilbert La Croix; Engineer, Chas. J. Burnham.
- Lake Erie Transportation Co., 40 Wade Bldg., Cleveland.** Steamer *Wm. S. Mack*—Captain, C. A. Benham; Engineer, T. J. Blain. Steamer *P. P. Pratt*—Captain, T. A. McDougall; Engineer, A. C. Ferguson. Schooner *Athens*—Captain, W. M. Woodward.
- Lake Erie Transportation Co., Toledo, O., A. W. Colton, Manager.** Steamer *Geo. J. Gould*—Captain, Walter M. Cottrell; Engineer, Geo. A. Butler. Steamer *S. C. Reynolds*—Captain, T. C. Herrick; Engineer, Jas. H. Miller.
- Lake Michigan Car Ferry Transportation Co., Chicago. (Controlled by Wisconsin & Michigan Railway Co.)** Steamer *S. M. Fisher*—Captain, Fred Johnson; Engineer, Bert Rasch. Steamer *J. C. Ames*—Captain, W. H. Welcher; Engineer, J. Phillips. Schooner *Car Ferry No. 1*—Captain, A. H. Bohlin. Schooner *Car Ferry No. 2*—Captain, Wm. Chambers.

T H E S A I N T M A R Y ' S C A N A L

Lake Michigan & Lake Superior Transportation Co., Chicago. Steamer *Osceola*. Steamer *Jay Gould*. Steamer *City of Traverse*. Steamer *Peerless*.

Lake Ontario & Bay of Quinte Steamboat Co., Kingston, Ont., O. J. Hickey, Chief Engineer, 193 University Ave. Steamer *North King*—Captain, John J. Jarrell; Engineer, O. J. Hickey. Steamer *Caspian*—Captain, William Bloomheld. Steamer *Aletha*—Captain, John A. Roys; Engineer, D. McSorley.

Lake Sand & Gravel Co., Toledo, O., R. E. Doville, Secretary. Steamer *Walter D.*—Captain, James B. Warner; Engineer, Joseph Sayen. Steamer *Laura D.*—Captain, John Cunningham; Engineer, James Shepler. Steamer *Commerce*—Captain, Edward McNutt; Engineer, Wm. McKinley. Steamer *Ella G.*—Captain, David F. Doville; Engineer, John Fletcher. Steamer *Syracuse*—Captain, John Mulinix; Engineer, Jacob Mulinix. Steamer *D. Dussault*—Captain, John Moesing; Engineer, Valentine Felder. Steamer *R. E. DoV'ille*—Captain, Frank Lamb; Engineer, DeWitt Fields.

Lake Shore Saw Mill & Lumber Co. and The Cleveland Transportation Co., Cleveland. Steamer *E. A. Shores, Jr.*—Captain, Geo. F. Forrest. Schooner *Kingfisher*—Captain, Wm. Sommerville.

Lake Shore Stone Co., Milwaukee, Wis. Steamer *Hennepin*—Captain, Chas D. Ross; Engineer, John W. Patterson.

Lakeside Steamship Co., Duluth, Minn. Steamer *Alfred Mitchell*—Captain, A. R. Beall; Engineer, Joseph Volly.

Lake Transit Co., Buffalo, N. Y., J. J. McWilliams, Treasurer, 1050 Niagara St. Steamer *Lackawanna*—Captain, C. J. Graser; Engineer, W. B. Lewis. Steamer *Scranton*—Captain, H. W. Stewart; Engineer, Frank D. Frederick. Steamer *Russia*—Captain, Alex McGowan; Engineer, Wm. Brown.

Leatham & Smith Towing & Wrecking Co., Sturgeon Bay, Wis. Steamer *I. N. Foster*—Captain, Louis Anderson; Engineer, Pat Curry. Steamer *Jos. L. Hurd*—Captain, James Keenan; Engineer, Edward Webber. Steamer *Chas. B. Packard*—Captain, Chas. B. Packard; Engineer, Jas. Curry. Steamer *Pawaukee*.

Lehigh Valley Transportation Co., Buffalo, N. Y., F. G. Rogers, Supervisor Marine Lines. Steamer *Seneca*—Captain, J. H. McDonald; Engineer, John Halldin. Steamer *Tuscarora*—Captain, Wm. Williams; Engineer, John Lachy. Steamer *Bethlehem*—Captain, C. E. Fuller; Engineer, H. King. Steamer *Saranac*—Captain, C. S. Furey; Engineer, H. Willson. Steamer *Mauch Chunk*—Captain, James H. Greene; Engineer, Daniel Fox. Steamer *Wilkesbarre*—Captain, D. J. Driscoll; Engineer, H. Mellon. Steamer *Batavia*—Captain Herman Hill; Engineer, John T. Mann.

Lester, M. P., Marine City, Mich. Schooner *Dayton*.

Livingstone, Wm., Detroit, Mich. Steamer *W. Livingstone*—Captain, James Doner; Engineer, James Morison. Steamer *Thos. W. Palmer*—Captain, Geo. F. Stilphen; Engineer, Terrance J. O'Connor.

Lonsby, Charles, Mt. Clemens, Mich. Steamer *Ida E.*—Captain, H. D. Moore; Engineer, Geo. Robertson. Steamer *Clinton*—Captain, David West; Engineer, John Hibbard.

Loud, H. N., Au Sable, Mich. Steamer *John B. Ketcham 2d*—Captain, Martin Christy; Engineer, Geo. H. Bowen. Steamer *Kongo*—Captain, Chas. E. Barnes; Engineer, A. W. Carlisle.

Loutit, W. H., Grand Haven, Mich. Steamer *Pentland*—Captain, Thos. McCambridge; Engineer, C. Ball.

Lozen, Capt. J. B., New Baltimore, Mich. Steamer *Chas. A. Street*—Captain, J. T. Hansen; Engineer, Chas. Flanagan. Schooner *J. B. Lozen*—Captain, J. F. Lozen. Schooner *J. Godfrey*—Captain, Richard Moore.

Lynn, M. J., Manager, Bay City, Mich. Steamer *Lizzie Madden*—Captain, W. J. Lynn; Engineer, A. McGinnis. Schooner *Maintenance*—Captain, John Madden. Schooner *Noquebay*—Captain, Andrew Bigger.

VESSELS ON THE GREAT LAKES IN 1905

- Ludwick, Captain Chas., 719 Tunnel St., Port Huron, Mich.** Schooner *Hattie Wells*—Captain, Chas. Ludwick.
- Macarthur Bros. Co., Detroit, Mich.** Steamer *Tecumseh*—Captain, Alex. Anderson; Engineer, A. E. Kennedy.
- McBrier, James, Erie, Pa.** Steamer *Sczona*—Captain, D. S. McDonald; Engineer, Wm. Phillipie. Steamer *Nyanza*—Captain, C. H. Wilson, Jr.; Engineer, J. I. Blanchette.
- McCarthy, Jerry, 159 Ohio St., Buffalo, N. Y.** Schooner *Iron City*—Captain, John Bartley. Schooner *Grace Holland*—Captain, M. Nagle. Schooner *G. H. Warmington*—Captain, F. Desott.
- McCormick, H. W., Bay City, Mich.** Schooner *Oneonta*—Captain, Alex. McCormick.
- Sandusky & Islands and Sandusky & Peninsular S. S. Co., Sandusky, O., E. M. McFall, Manager.** Steamer *Arrow*—Captain, Geo. A. Brown; Engineer, Jacob Wies. Steamer *Lakeside*—Captain, Fred J. Nagle; Engineer, William Quick.
- McKay, R. O. & A. B., Hamilton, Ont.** Steamer *Strathcona*—Captain, John Irving; Engineer, Wm. Harman. Steamer *Donnacona*—Captain J. W. Mawdesley; Engineer, John S. Duguid. Steamer *Nee-pawah*—Captain, Oliver Patenaude; Engineer, Jas. Smeaton. Steamer *Wahcondah*—Captain, Harry Zealand; Engineer, John Waller. Steamer *Lake Michigan*—Captain, J. H. FitzGerald; Engineer, Arthur Abbey.
- McKenzie, Captain Andrew, 494 25th St., Detroit.** Schooner *Pomeroy*—Captain, Andrew McKenzie.
- MacLachlan Transportation Co., Port Huron, Mich.** Steamer *C. F. Bickman*—Captain, J. W. Montgomery; Engineer, Geo. Charleston. Schooner *Mary E. McLachlan*—Captain, Alex. Shamblean.
- McLean A. C., E. Saginaw, Mich.** Schooner *B. B. Buckhout*. Schooner *H. W. Hoag*.
- McMillan, M. B., Managing Owner, Detroit.** Steamer *Admiral*—Captain, John H. Ivers; Engineer, P. B. McCabe.
- McMorran, Henry, Port Huron, Mich.** Steamer *Pawnee*—Captain, Geo. Tremble; Engineer, Mr. Bingham. Steamer *Gogebic*—Captain, James S. Neal; Engineer, Ed Mehner. Steamer *Britanic*—Captain, E. H. Davis; Engineer, Frank Cadotte. Steamer *M. Ross*—Captain, Diefenbach; Engineer, D. Stevens. Schooner *Howland*—Captain, Allen Curtis. Schooner *Checotah*—Captain, H. S. Hughes. Schooner *Wm. A. Young*—Captain, S. Armstrong. Schooner *J. R. Edwards*—Captain, H. Spalding. Schooner *M. E. Orton*—Captain, Ed Henry.
- McTigue, Patrick, Cleveland, O.** Steamer *A. A. Turner*.
- McVittie, Alex, Detroit, Mich.** Steamer *Senator*—Captain, W. A. Irvine; Engineer, W. J. Bolton. Steamer *Colonel*—Captain, A. Ames; Engineer, A. Cobo.
- Maddigan, James A., 27 N. Ashland Ave., Buffalo.** Steamer *Canisteo*—Captain, Jas. A. Maddigan; Engineer, Jas. Smith. Schooner *A. A. Carpenter*—Captain, Fred Watson. Schooner *Myron Butman*—Captain, John Burke.
- Mahoney, C. S., Buffalo, N. Y.** Steamer *Inter-Ocean*.
- Manistee Lumber Co., Manistee, Mich.** Steamer *Robt. C. Wentz*—Captain, Aug. E. Anderson; Engineer, Herman Winckler.
- Manistique, Marquette & Northern Ry. Co., Milwaukee, Wis., C. F. Blomeyer, President and General Manager, W. L. Mercereau, Superintending Engineer, Ludington, Mich.** Steamer *M. M. & N. 1*—Captain, F. W. Robertson; Engineer, J. R. Taylor.
- Manitou Steamship Co., Chicago, N. F. Leopold, President.** Steamer *Manitou*—Captain, Allan McIntyre; Engineer, B. F. McCanna.

THE SAINT MARY'S CANAL

- Marine Navigation Co., Michigan City, Ind., Geo. G. Oliver, Manager.** Steamer *Francis Hinton*—Captain, John M. Campbell; Engineer, Dolph Zeitsch. Steamer *A. R. Colborn*—Captain, Odin Larson; Engineer, John H. Lutz.
- Marine Transit Co., Marine City, Mich.** Steamer *Toltec*. Steamer *Zapotec*.
- Marine Transportation Co., The, Ogdensburg, N. Y.** Steamer *Nipigon*—Captain, David Hutcheson; Engineer, John Kenada.
- May, Captain A. T., 397 Champlain St., Detroit, Mich.** Steamer *Emerald*—Captain, A. T. May; Engineer, Wm. Galpin.
- Marquette & Bessemer Dock & Navigation Co., Conneaut, O.** Steamer *Marquette and Bessemer No. 1*—Captain, R. R. McLeod; Engineer, E. Wood. Steamer *Pere Marquette No. 16*—Captain, George L. Thompson; Engineer, G. Van Brunt.
- Mathews, J. T., Toronto, Can.** Steamer *Haddington*—Captain, Jas. Delaney; Engineer, R. W. Ross.
- Mathison, Captain M., 515 Washington St., Milwaukee, Wis.** Schooner *Hattie Hutt*—Captain, M. Mathison.
- Mehl, Edward, Erie, Pa.** Steamer *Uganda*—Captain, W. W. Wilkins; Engineer, C. R. Ogg.
- Merchants Line, Montreal, Can., G. E. Jaques & Co., Managers.** Steamer *City of Montreal*—Captain, Arthur Lefebvre; Engineer, Fred Hamelin. Steamer *Cuba*—Captain, Antoine Manpetite; Engineer, Eugene Hamelin. Steamer *Melbourne*—Captain, Hiram Vaughn; Engineer, Jos. Bulanger. Steamer *China*.
- Meyer, W. H., Milwaukee, Wis.** Steamer *Christopher*—Captain, W. E. Wright; Engineer, Scott Pratt.
- Michigan Central R. R. Co., Detroit, Mich., John Westaway, Superintending Engineer, Grand Union Hotel.** Steamer *Transfer*—Captain, J. R. Innes; Engineer, A. Barton. Steamer *Detroit*—Captain, H. L. Innes; Engineer, D. A. Black. Steamer *Transport*—Captain, J. R. Innes; Engineer, Jno. Cockburn. Steamer *Michigan Central*—Captain, J. R. Innes; Engineer, Alex. Pirie.
- Michigan, Indiana & Illinois Line, Chicago, R. K. Warren, Managing Owner, Pier No. 1.** Steamer *John Oades*—Captain, H. M. Boyce; Engineer, Eugene Hidden. Steamer *Marion*—Captain, H. J. Nelson; Engineer, G. C. Olson. Steamer *Minnie E. Kelton*—Captain, J. A. Johnson; Engineer, Fred Gartung. Steamer *Normandie*—Captain, Andrew Olsen; Engineer, Frank P. Snyder. Schooner *Frank C. Leighton*.
- Michigan Salt Transportation Co., Milwaukee, Wis., B. B. Barnes, Secretary.** Steamer *Pere Marquette 2*—Captain, Peter McGuiggan; Engineer, Henry O'Connell. Steamer *Pere Marquette 3*—Captain, H. L. Sanders; Engineer, E. S. Hineline. *Pere Marquette 4*—Captain, Chas. Moodey; Engineer, Geo. Williams.
- Michigan Steamship Co., Chicago.** Steamer *Eastland*—Captain, F. A. Dority; Engineer, W. P. Eales.
- Midland Navigation Co., Midland, Ont.** Steamer *Midland King*—Captain, W. H. Featherstonbaugh; Engineer, Ed. Abbey. Steamer *Midland Queen*—Captain, Frank Burke; Engineer, Geo. A. Smith.
- Midland Towing & Wrecking Co., Midland, Ont.** Steamer *Traveler*—Captain, Jas. Tyndall; Engineer, Frank Goodwin. Steamer *Reliance*—Captain, Roy Burke; Engineer, Jas. McGregor. Steamer *Magnolia*—Captain, Jas. Clark; Engineer, Jno. Doran. Steamer *Metamora*—Captain, Ed. Burke; Engineer, Fred Chester. Steamer *Minitaga*—Captain, Geo. Kinnel; Engineer, John Kinnel. Steamer *Menodora*—Captain, Chas. Gould; Engineer, Henry Chester.
- Miller, J. B., Toronto, Can.** Steamer *Seguin*—Captain, Jeremiah Cavanaugh; Engineer, H. I. Welch.
- Miller, J. C., Marine City, Mich.** Steamer *Rand*—Captain, J. C. Miller; Engineer, John Stevens.

VESSELS ON THE GREAT LAKES IN 1905

Mills, N. & B., Marysville, Mich. Steamer *Argonaut*—Captain, George J. Bennett. Steamer *Havana*. Steamer *Sparta*. Steamer *Harley*—Captain, Thos. Rhadigan; Engineer, Geo. Roberts. Steamer *City of Concord*. Steamer *Thos. R. Scott*—Captain, Paul Rivard; Engineer, Mike Ryan. Steamer *Nelson Mills*—Captain, Dan Warwick; Engineer, E. J. Moore. Steamer *H. J. Kendall*—Captain, H. J. Kendall; Engineer, Fred Thurman. Schooner *Biwabik*—Captain, D. B. Cadotte. Schooner *Alex Anderson*—Captain, J. K. Edwards.

Milwaukee & Michigan Transport Co., Milwaukee, Wis., Richard Schomberg, Managing Owner. Steamer *M. C. Neff*—Captain, Fred Schwerman; Engineer, Geo. Carr.

Minch & Nicholas Transit Companies, Cleveland, Wm. Gerlach, Manager. Steamer *I. W. Nicholas*. Steamer *Onoko*. Steamer *Philip Minch*. Steamer *Wm. Chisholm*.

Minneapolis, St. Paul & Buffalo Steamship Co., Buffalo, J. C. MacLay, General Agent. Steamer *Minneapolis*—Captain, Walter Robinson; Engineer, D. J. McMillan. Steamer *St. Paul*—Captain, Peter Thompson; Engineer, Henry Stone. Steamer *Huron*—Captain, Neil Andersen; Engineer, Clinton C. Folkerts. Steamer *Wm. Castle Rhodes*—Captain, P. Dowdell; Engineer, Guy A. Hemenger.

Mitchell & Co., Rockefeller Bldg., Cleveland, O. Steamer *Stephen M. Clement*—Captain, C. B. Galton; Engineer, Wm. Fetting. Steamer *Frank H. Goodyear*—Captain, H. A. Stewart; Engineer, Wm. Fritz. Steamer *Moses Taylor*—Captain, Fred D. Galton; Engineer, I. A. Francombe. Steamer *Wm. H. Gratwick*—Captain, L. C. Jackson; Engineer, C. J. Love. Steamer *James Gayley*—Captain, H. H. Townsend; Engineer, John Maldel. Steamer *Walter Scranton*—Captain, M. M. Stewart; Engineer, Henry Graves. Steamer *John J. Albright*—Captain, J. W. Auttersson; Engineer, Peter Lavelly. Steamer *Wm. E. Reis*—Captain, John D. Baird; Engineer, Louis Minnie. Steamer *M. A. Hanna*—Captain, Alex Begg; Engineer, John Riley. Steamer *H. C. Frick*—Captain, J. B. Lowe; Engineer, F. B. Parker. Steamer *Hendrick S. Holden*—Captain, G. E. Anderson; Engineer, John Scott. Steamer *Lagonda*—Captain, Ed. Johnston; Engineer, Wm. L. Leng. Steamer *Major*—Captain, F. R. Hemenger; Engineer, Otto Guy. Steamer *J. J. McWilliams*—Captain, Fred Furtain; Engineer, Gus Guy. Steamer *Robert L. Fryer*—Captain, J. C. Sauer; Engineer, Frank Thomas. Schooner *Troy*—Captain, Henry Deim.

Mitchell & Rowland Lumber Co., Toledo, O. Steamer *Sachem*—Captain, H. R. Moore; Engineer, James Leitch. Steamer *Geo. B. Owen*—Captain, Nels Johnson.

Monroe, Thos., Muskegon, Mich. Steamer *Geo. C. Markham*—Captain, Anton Christensen; Engineer, Ambrose Smith. Schooner *Lyman M. Davis*—Captain, Hans Hermanson.

Montreal Transportation Co., Montreal, Can., Jas. A. Cuttle, Managing Director. Steamer *Westmount*—Captain, Alexander Milligan; Engineer, Kemp Richardson. Steamer *Fairmount*—Captain, P. C. Telfer; Engineer, Wm. Newbold. Steamer *Rosemount*—Captain, John Wood; Engineer, Richard Taylor. Steamer *Bothnia*—Captain John Doyle; Engineer, Wm. Spencer. Steamer *Advance*—Captain, Gordon Kean; Engineer, Geo. Hazlett. Steamer *D. G. Thompson*—Captain, Jos. Murray; Engineer, G. Boyd. Steamer *Emerson*—Captain, James Murray; Engineer, G. Henderson. Schooner *Minnedosa*—Captain, John Phillips. Schooner *Hamilton*—Captain, James Kirkwood. Schooner *Quebec*—Captain, Henry Milligan. Schooner *McIrose*—Captain, R. A. Davey. Schooner *Augustus*—Captain, H. Boyer.

Mueller Co., Wm., Marquette Bldg., Chicago. Steamer *Mueller*—Captain, Ed. Fitch; Engineer, G. G. Randall. Schooner *Butcher Boy*—Captain, Harry Woerpel. Schooner *Belle Brown*—Captain, Max Delatre. Schooner *Richard Mott*—Captain, Wm. Powers.

Muskegon Steam Barge Co., Muskegon, Mich. Steamer *S. M. Stephenson*—Captain, James Sanford; Engineer, Dennis McMillan; Steamer *John Otis*—Captain, Peter Young; Engineer, A. A. Green. Steamer *Mathew Wilson*—Captain, Stuffbeam; Engineer, Donald McMillan.

THE SAINT MARY'S CANAL

- Mutual Transit Co., Buffalo, N. Y., W. C. Lloyd, Acting Superintendent.** Steamer *North Star*—Captain, Geo. Hayward; Engineer, Wm. T. Pike. Steamer *North Wind*—Captain, E. B. Blair; Engineer, Thos. Jackman. Steamer *Northern King*—Captain, E. C. Leath; Engineer, August Nagelvoort. Steamer *Northern Light*—Captain, Scott B. Worden; Engineer, John Dee. Steamer *Northern Queen*—Captain, W. H. Stevenson; Engineer, P. J. McGinnis. Steamer *Northern Wave*—Captain, D. L. Cartwright; Engineer, J. J. Darcy.
- Myles Transportation Co., Ltd., Niagara Falls, N. Y.** Steamer *Myles*—Captain, J. S. Moore; Engineer, Peter Ryan.
- Myers, Chas. A., 169 Jackson St., Chicago.** Schooner *Bertha Barnes*—Captain, Peter Blake. Schooner *S. A. Wood*—Captain, Patrick Myers.
- Neff, Charles S., Milwaukee, Wis.** Steamer *Chas. S. Neff*—Captain, J. J. Doak; Engineer, S. L. Newham.
- Neff, Sidney O., Milwaukee, Wis.** Steamer *Lucy Neff*—Captain, L. Holm; Engineer, P. Keenan. Steamer *Adella Shores*—Captain, S. Holmes; Engineer, Chas. N. Neeck.
- Nessen & Co., J. O., Manistee, Mich.** Steamer *F. W. Fletcher*—Captain, H. Bennett; Engineer, Geo. Hopkins. Steamer *Albert Soper*—Captain, A. E. Anderson; Engineer, Harry Moore. Steamer *Charles Rietz*—Captain, Christ Edwardson; Engineer, Joe Seymour. Steamer *N. J. Nessen*—Captain, J. E. Jacobson; Engineer, Geo. Patterson.
- Nester, George, Detroit, Mich.** Steamer *Schoolcraft*—Captain, Jas. Bourassa; Engineer, James Hurd. Schooner *Mary N. Bourke*—Captain, Phillip Heppner. Schooner *Geo. Nester*—Captain, Geo. Du Beau. Schooner *Keweenaw*—Captain, Geo. Richie.
- Niagara River Day Line, Toronto, Ont., Geo. M. Arnold, Superintending Engineer.** Steamer *Chippewa*—Captain, John McGiffin; Engineer, Geo. M. Arnold. Steamer *Corona*—Captain, Harvey Solmes; Engineer, A. J. Woodward. Steamer *Chicora*—Captain, Robert Clapp; Engineer, H. Parker. Steamer *Ongiara*—Captain, Hugh McIntyre; Engineer, Chas. Merriam.
- Niagara Transit Co., N. Tonawanda, N. Y.** Steamer *Wm. A. Rogers*—Captain, Thos. Deringer; Engineer, Frank Trinkwalder.
- Nipigon Transit Co., Claireview, Mich.** Steamer *J. C. Ford*—Captain, N. L. Morrison; Engineer, H. Manion.
- Northern Michigan Transportation Co., Chicago, Ill.** Steamer *Missouri*—Captain, Wm. Finucan; Engineer, Thos. Collins. Steamer *Illinois*—Captain, Frank Richardson; Engineer, Patrick Eustice. Steamer *Kansas*—Captain, John Morton.
- Northern Navigation Co. of Ontario, Ltd., The, Collingwood, Ont., A. B. Pratt, Assistant Manager.** Steamer *Huron*—Captain, R. D. Foote; Engineer, Samuel Brishin. Steamer *Monarch*—Captain, E. Robertson; Engineer, A. Morton. Steamer *United Empire*—Captain, A. L. Campbell; Engineer, H. Myler. Steamer *Majestic*—Captain, Geo. H. Playter; Engineer, Wm. Whipps. Steamer *City of Collingwood*—Captain, A. M. Wright; Engineer, C. Robertson. Steamer *Germanic*—Captain, W. G. Cox; Engineer, Joseph Asten. Steamer *City of Midland*—Captain, F. G. Moles; Engineer, Steve Burgess. Steamer *City of Toronto*—Captain, Paul Dusome; Engineer, B. F. Osborne. Steamer *Britanic*—Captain, M. McLean; Engineer, Isaac Boyd.
- Northern Steamship Co., Buffalo, N. Y., F. C. Cruger, Manager.** Steamer *North Land*—Captain, J. J. Hartman; Engineer, M. N. McDonald. Steamer *North West*—Captain, Geo. A. Minar; Engineer, A. T. Stewart.
- Ogdensburg Coal & Towing Co., Ogdensburg, N. Y.** Steamer *Nicaragua*—Captain, James Owen; Engineer, D. G. Costello. Steamer *Avon*—Captain, Geo. Clifford; Engineer, Freeman Axtell. Steamer *Denver*. Schooner *Henry Witbeck*—Captain, Justin Mallette. Schooner *Fred Carney*—Captain, Timothy Hunt. Schooner *Isaac Stephenson*—Captain, O. C. Wilcox. Schooner *Menominee*—Captain, Justin Mallette, Jr. Schooner *Hoboken*—Captain, A. Demars. Schooner *H. B.*—Captain, Alfred Lalonde. Schooner *James Buckley*—Captain, Alderic Derocher. Schooner *Ireland*—Captain, P. Thiverge.

VESSELS ON THE GREAT LAKES IN 1905

O'Connor, James, Tonawanda, N. Y. Steamer *Birckhead*—Captain, Jas. Hefferon; Engineer, Edward Knibbs. Schooner *F. D. Ewing*—Captain, Hugh O'Hagen. Schooner *J. I. Case*—Captain, A. Mills.

Ohio Cooperage Transportation Co., Cleveland. Steamer *Monohansett*—Captain, W. A. Kendall; Engineer, A. W. Carlisle.

Olga Transportation Co., Tonawanda, N. Y., E. G. Reisterer, Manager. Steamer *John C. Pringle*—Captain, James Brines; Engineer, Edward Staley. Schooner *Sweetheart*—Captain, John B. McDermott. Schooner *Unadilla*—Captain, Arvet Ohmon.

Osborne, F. M., Western Reserve Bldg., Cleveland. Steamer *John W. Moore*—Captain, E. Detlefs; Engineer, A. G. Bohland. Steamer *Louisiana*—Captain, J. L. Bradshaw; Engineer, Harry Edmondson.

Oscoda & Cleveland Transportation Co., St. Clair, Mich., C. W. Thompson, Manager. Steamer *City of Holland*—Captain, F. J. Meno; Engineer, Henry Meno. Steamer *Pilgrim*—Captain, Al Palmer; Engineer, Jos. Meno. Steamer *Douglas*—Captain, M. Trombly; Engineer, A. Hamlin.

Owen, Geo., Ashtabula, O. Steamer *Jennie E. Smith*—Captain, Frank E. Nettleton; Engineer, Henry Hess. Steamer *Stephen Chase*—Captain, D. W. Nettleton; Engineer, Peter Rasmussen.

Owen Transportation Co., J. Emery, Detroit, R. T. Gray, Manager. Steamer *John Owen*—Captain, H. T. Archer; Engineer, S. L. Phillips.

Parks, O. E., 117 E 7th St., Michigan City, Ind. Steamer *O. E. Parks*—Captain, O. E. Parks; Engineer, Robert Elliott. Steamer *Marshall F. Butters*—Captain, Robert Reid; Engineer, Wayne Coates.

Pauly, H. J., Milwaukee, Wis. Steamer *Thos. Davidson*—Captain, H. Oertling, Jr.; Engineer, Thos. Martin. Steamer *John Duncan*—Captain, Wm. McLean; Engineer, Ben Aldrich. Steamer *Walter Vail*—Captain, John McAvoy. Steamer *Harlem*—Captain, Edw. Hendricks. Schooner *Aberdeen*—Captain, Thos. Leisk. Schooner *Baltic*—Captain, A. Peterson.

Pederson, Knud, Tonawanda, N. Y. Schooner *Commodore*—Captain, K. Pederson.

People's Transit Co., Foot Wabash Ave., Chicago Steamer *Frontenac*.

Pere Marquette Steamship Co., Milwaukee, Wis., E. F. Blomeyer, President and General Manager, F. C. McLaren, Superintending Engineer, Ludington, Mich. Steamer *International*—Captain, Geo. R. McPherson; Engineer, George Brown. Steamer *Pere Marquette*—Captain, W. J. Barnett; Engineer, Jas. Meyers. Steamer *Pere Marquette 5*. Steamer *Pere Marquette 14*—Captain, Geo. R. McPherson; Engineer, F. P. Fitzgerald. Steamer *Pere Marquette 16*—Captain, Geo. L. Thompson; Engineer, Geo. I. Van Vront. Steamer *Pere Marquette 17*—Captain, Jos. Russell; Engineer, A. W. Ackerman. Steamer *Pere Marquette 18*—Captain, Peter Kilty; Engineer, C. Sylvester. Steamer *Pere Marquette 19*—Captain, Wm. La Fleur; Engineer, J. C. Watson. Steamer *Pere Marquette 20*—Captain, J. C. Ackerman; Engineer, Robert McLaren. Steamer *M. M. & N. 1*—Captain, W. P. Robertson; Engineer, Jos. Taylor.

Pickands, Mather & Co., Cleveland (Managers for Boston Coal Dock & Wharf Co.), A. Arnold, Superintending Engineer for P. M. & Co. Fleets. Steamer *Appomattox*—Captain, Frank Hebner; Engineer, H. A. Woods. Schooner *Santiago*—Captain, P. Cartwright.

Pickands, Mather & Co., Cleveland (Managers for Huron Barge Co.) Steamer *Pathfinder*—Captain, L. W. Stone; Engineer, C. A. Heisner. Barge *Sagamore*—Captain, J. D. McPherson.

Pickands, Mather & Co., Cleveland. (Managers for Interlake Co.) Steamer *Victory*—Captain, D. H. Mallory; Engineer, Edgar Arnold. Steamer *Kearsarge*—Captain, Jas. McNeill; Engineer, A. A. Manion. Schooner *Constitution*—Captain, Harry Howard.

THE SAINT MARY'S CANAL

Pickands, Mather & Co., Cleveland (Managers for Masaba Steamship Co.). Steamer *Amasa Stone*—Captain, G. B. Mallory; Engineer, A. Arnold.

Pierce, Wm. E., W. Bay City, Mich. Steamer *Ogemaw*—Captain, Wm. E. Pierce; Engineer, Aaron Hagadon. Schooner *C. J. Filmore*—Captain, John Hagarty.

Pittsburg Steamship Co., Cleveland., H. A. Coulby, President and General Manager, F. B. Smith, Superintending Engineer. Steamer *Bessemer*—Captain W. S. Hoag; Engineer, A. G. Haig. Steamer *Black*—Captain, M. A. Boyce; Engineer, J. Hegemer. Steamer *Briton*—Captain, Geo. Holdridge; Engineer, J. Skelly. Steamer *Bunsen*—Captain, J. W. Morgan; Engineer, J. F. Wood. Steamer *Corcy*—Captain, F. A. Bailey; Engineer, M. Toner. Steamer *Cambria*—Captain, T. J. Cullen; Engineer, E. R. Leedham. Steamer *Colgate*—Captain, A. G. McLeod; Engineer, Jos. Hasler. Steamer *Coralia*—Captain, W. H. Campau; Engineer, A. P. Williams. Steamer *Cornell*—Captain, W. H. Kilby; Engineer, G. C. Lawrence. Steamer *Corono*—Captain, J. T. Gemmell; Engineer, J. H. Riffin. Steamer *Corsica*—Captain, H. J. Regan; Engineer, T. McKenzie. Steamer *Cort*—Captain, J. R. Noble; Engineer, E. H. Pelton. Steamer *Crescent City*—Captain, Frank Rice; Engineer, E. Budemeyer. Steamer *Eads*—Captain Arthur Montague; Engineer, C. A. Fletcher. Steamer *Edenborn*—Captain, A. J. Talbot; Engineer, S. A. Hunter. Steamer *Ellwood*—Captain, C. H. Cummings; Engineer, F. Harringer. Steamer *Empire City*—Captain A. R. Robinson; Engineer, F. Mansfield. Steamer *Ericsson*—Captain, E. O. Whitney; Engineer, A. P. Williams. Steamer *Fairbairn*—Captain, C. J. Grant; Engineer, D. Frazer. Steamer *Frick*—Captain, Neil Campbell; Engineer, A. L. Eggert. Steamer *Fulton*—Captain C. G. Ennis; Engineer, G. Arnold. Steamer *Gary*—Captain, Richard Jollie; Engineer, I. Dupont. Steamer *Gates*—Captain, J. A. Walsh; Engineer, J. W. Grenier. Steamer *German*—Captain, Robert Brooks; Engineer, Wm. C. Lucas. Steamer *Gilbert*—Captain, E. Dyble; Engineer, W. G. Tilton. Steamer *Grecian*—Captain, Andrew Hansen; Engineer, A. J. Armson. Steamer *Griffin*—Captain, E. L. Sawyer; Engineer, J. B. McDermid. Steamer *Harvard*—Captain, C. D. Secord; Engineer, E. Egan. Steamer *Hill*—Captain, George Sell; Engineer, E. S. Stoddard. Steamer *Houghton*—Captain, E. M. Smith; Engineer, J. W. McEachren. Steamer *Joliet*—Captain, W. E. Stover; Engineer, B. Cassidy. Steamer *Lafayette*—Captain, D. P. Wright; Engineer, L. Walder. Steamer *Lasalle*—Captain, Thos. Wilson; Engineer, D. Milloy. Steamer *Linn*—Captain, Geo. Banker; Engineer, H. Dupont. Steamer *McDougall*—Captain, John Nahrstedt; Engineer, J. Inman. Steamer *Malietoa*—Captain, A. C. Chapman; Engineer, T. Treleven. Steamer *Manola*—Captain, H. G. Harbottle; Engineer, A. Rivard. Steamer *Maricopa*—Captain, John Parke; Engineer, F. A. Smith. Steamer *Marina*—Captain, A. C. Smith; Engineer, Geo. Lynn. Steamer *Mariposa*—Captain, Jas. Burr; Engineer, H. T. McLeod. Steamer *Mariska*—Captain, H. Kerr; Engineer, J. B. Miller. Steamer *Maritana*—Captain, J. B. Parker; Engineer, J. J. Norcross. Steamer *Maruba*—Captain, F. C. Watson; Engineer, H. E. Schmidt. Steamer *Masaba*—Captain, C. A. Weitzman; Engineer, J. H. McGlenn. Steamer *Mataafa*—Captain, R. F. Humble; Engineer, Wm. Most. Steamer *Mather*—Captain, C. S. Boyce; Engineer, F. J. Spencer. Steamer *Matoa*—Captain, H. Gegoux; Engineer, E. J. Rae. Steamer *Maunaloa*—Captain, J. Laframboise; Engineer, A. McKenzie. Steamer *Morse*—Captain, John Lowe; Engineer, E. W. Fox. Steamer *Murphy*—Captain, James Leisk; Engineer, Wm. Densmore. Steamer *Neilson*—Captain, Oscar Olsen; Engineer, J. Wilson. Steamer *Palmer*—Captain, J. H. Clapp; Engineer, J. H. Cunningham. Steamer *Perkins*—Captain, W. H. Moody; Engineer, H. Annett. Steamer *Poe*—Captain, W. C. Iler; Engineer, F. Warning. Steamer *Princeton*—Captain, A. P. Chambers; Engineer, W. L. Campbell. Steamer *Queen City*—Captain, C. Gegenheimer; Engineer, E. H. Learned. Steamer *Rensselaer*—Captain, S. C. Allen; Engineer, I. Marshall. Steamer *Rockefeller*—Captain, P. A. Petersen; Engineer, T. Kelley. Steamer *Roman*—Captain, George Randolph; Engineer, Wm. Dornbrook. Steamer *Saxon*—Captain, Geo. H. Bowen; Engineer, R. Mastin. Steamer *Shaw*—Captain, John Burns; Engineer, E. J. Fitzgerald. Steamer *Siemens*—Captain, M. K. Chamberlain; Engineer, D. McVicar. Steamer *Stephenson*—Captain, W. B. MacGregor; Engineer, S. W. Armstrong. Steamer *Superior*—Captain, A. H. Kent; Captain, J. Hursley; Engineer, G. Ingham. Steamer *Superior City*—Captain, F. J. Crowley; Engineer, M. B. Sturtevant. Steamer *Trevor*—Captain, J. A. Furguson; Engineer, H. Firby. Steamer *Van Hise*—Captain, Fred Hoffman; Engineer, J. McLaughlin. Steamer *Watt*—Captain, W. J. Hunt; Engineer, A. M. Armson. Steamer *Wawatam*—Captain, J. C. Bell; Engineer, W. D. Killett; Steamer *Wolvin*—Captain,

VESSELS ON THE GREAT LAKES IN 1905

- A. R. Thompson; Engineer, J. W. Parr. Steamer *Zenith City*—Captain, H. Culp; Engineer, A. Jackson. Schooner *Bell*—Captain, C. Mulholland. Schooner *Bryn Mawr*—Captain, Geo. B. Kendall. Schooner *Carrington*—Captain, J. H. Denner. Schooner *Corliss*—Captain, J. Y. Sprowell. Schooner *Fritz*—Captain, S. J. Millen. Schooner *Holley*—Captain, H. T. Kelley. Schooner *Jenny*—Captain, A. Nordahl. Schooner *Krupp*—Captain, Fred H. Rae. Schooner *Malta*—Captain, David Bouille. Schooner *Marcia*—Captain, Geo. Maloney. Schooner *Manda*—Captain, H. Harris, Jr. Schooner *Martha*—Captain, W. F. Allen. Schooner *Magna*—Captain, H. M. White. Schooner *Maida*—Captain, O. W. Holdridge. Schooner *Maia*—Captain, W. H. Dick. Schooner *Manila*—Captain, H. Walper. Schooner *Maderia*—Captain, Louis Leonard. Schooner *Marsala*—Captain, J. H. Dissette. Schooner *Nasmyth*—Captain, Donald Graham. Schooner *Roebling*—Captain, H. M. Saveland. Schooner *Smeaton*—Captain, J. F. Gray. Schooner *Thomas*—Captain, David Williams. Schooner *117*—Captain, Geo. Foster. Schooner *118*—Captain, Louis Larsen. Schooner *130*—Captain, Fred Kirk. Schooner *131*—Captain, Alfred Baupre. Schooner *132*—Captain, Robt. Thompson. Schooner *133*—Captain, Chas. Thompson. Schooner *134*—Captain, A. S. Hand. Schooner *137*—Captain, Wm. McDonald.
- Port Huron & Duluth Steamship Co., Port Huron, Mich., C. O. Duncan, T. M.** Steamer *Wyoming*—Captain, John C. McLean; Engineer, Geo. M. Bohnert. Steamer *Russia*—Captain, Alex McCowan; Engineer, Wm. Brown.
- Port Huron & Sarnia Ferry Co., Port Huron, Mich.** Steamer *O. D. Gonger*—Captain, Wm. S. Major; Engineer, Wm. Waugh. Steamer *Hiawatha*—Captain, E. M. Thomas; Engineer, John Lee. Steamer *James Board*. Steamer *Grace Dormer*—Captain, Geo. Waugh; Engineer, John Kinirie.
- Potter, Teare & Co., Cleveland, W. H. Teare, Manager.** Steamer *Mary A. McGregor*—Captain, Henry Brock; Engineer, Wm. Griffith.
- Prindiville & Son, John, Managers, Chicago, Ill.** Steamer *Winnebago*—Captain, T. J. Moran; Engineer, Fred Otto. Steamer *Jessie Spaulding*—Captain, Jas. Travis; Engineer, Thos. H. Ward.
- Pringle, Captain John C., St. Clair, Mich.** Steamer *Isabella J. Boyce*—Captain, J. M. Smith; Engineer, Alex. McLea.
- Pulling, W. J., Windsor, Ont.** Steamer *Juno*—Captain, Archie McInnis; Engineer, Sandy Kirby. Schooner *Sligo*—Captain, John McPherson. Schooner *Vesta*—Captain, Norman McDonald.
- Ralph & Co., P. J., Detroit, Mich.** Schooner *Mabel Wilson*.
- Recor, E. C., St. Clair, Mich.** Steamer *E. P. Recor*—Captain, E. Hungerford; Engineer, C. Schunk.
- Red Star Line, Buffalo, N. Y.** Steamer *Robert Mills*—Captain, F. A. West; Engineer, W. T. Taylor. Steamer *Wyoming*—Captain, J. C. McLean; Engineer, Geo. M. Bohnert. Steamer *Cuba*—Captain, Robert Young; Engineer, S. E. Turey.
- Reid, James, Sarnia, Ont.** Steamer *Manistique*—Captain, John Cooper; Engineer, Wm. King. Schooner *John Kelderhouse*—Captain, Wm. Ryder. Schooner *Bell Hanscomb*—Captain, A. D. McLean. Schooner *Oliver Mitchell*—Captain, L. Vansomer.
- Rend, W. P., 115 Dearborn St., Chicago, Ill.** Steamer *W. P. Rend*—Captain, A. H. Thompson; Engineer, J. Hogan. Steamer *Panther*—Captain, E. Evans.
- Republic Iron Co., Perry-Payne Bldg., Cleveland.** Steamer *Republic*—Captain, Wm. McGarvey; Engineer, Geo. Abill.
- Rhodes, R. R., Cleveland, O.** Steamer *Yale*—Captain, Jas. Jackson; Engineer, Harry Stone. Steamer *Wm. Castle Rhodes*—Captain, P. Dowell; Engineer, Guy Hemenger. Steamer *Minneapolis*—Captain, Walter Robinson; Engineer, D. J. McMillan. Steamer *St. Paul*—Captain, Peter Thompson; Engineer, Henry Stone. Steamer *Huron*—Captain, Neil Anderson; Engineer, Clinton Folkerts.

T H E S A I N T M A R Y ' S C A N A L

W. C. Richardson, Cleveland. Steamer *W. C. Richardson*—Captain, Thomas Milford; Engineer, James Falconer. Steamer *Roumania*—Captain, Wm. Hagen; Engineer, James Bennett. Steamer *Samuel Mitchell*—Captain, John H. Babbitt; Engineer, A. C. Bowen. Steamer *J. H. Wade*—Captain, Phillip H. Smith; Engineer, John McMonagle. Steamer *J. H. Devereaux*—Captain, C. C. Mason; Engineer, Thos. Shannon. Steamer *J. H. Outhwaite*—Captain, Ralph H. Nutting; Engineer, G. H. Miller. Steamer *Iroquois*—Captain, Enos J. Burke; Engineer, L. L. Bowen. Steamer *Iron King*—Captain, James Ross; Engineer, Albert E. Bury. Steamer *Wm. Edwards*—Captain, Charles Ahlstrom; Engineer, Moses Blondin. Schooner *Chicamunga*—Captain, Harry W. Phillips. Schooner *Crcle*—Captain, Henry Larsen. Schooner *Mary B. Mitchell*—Captain, John McKeighan. Schooner *Iron Queen*—Captain, D. A. Maynes. Schooner *Golden Age*—Captain, D. H. Stalker.

Richards Transportation Co., Cleveland, J. A. Donaldson, Managing Owner, 503 Perry-Payne Bldg. Steamer *Rube Richards*—Captain, T. G. Simmons; Engineer, Jos. Dale. Schooner *May Richards*—Captain, Frank E. Reeves.

Richelieu & Ontario Navigation Co., Montreal, Can., C. J. Smith, General Manager. Steamer *Montreal*—Captain, F. X. Lafrance; Engineer, Geo. Gendron. Steamer *Kingston*—Captain, Henry Esford; Engineer, A. R. Milne. Steamer *Toronto*—Captain, E. A. Booth, Jr.; Engineer, W. A. Black. Steamer *Quebec*—Captain, L. O. Boucher. Steamer *Brockville*—Captain, C. J. Hinkley; Engineer, Jas. Conlin. Steamer *Prescott*—Captain, Andrew Dunlop; Engineer, Geo. Gendron. Steamer *Belleville*—Captain, J. McGrath; Engineer, W. S. Parker. Steamer *Pictou*—Captain, Daniel Mills; Engineer, A. Demartigny. Steamer *Cornwall*—Engineer, C. Gendron. Steamer *Beaupre*—Captain, C. Mongeau; Engineer, F. X. Lacroix. Steamer *Three Rivers*—Captain, C. Goulin; Engineer, J. Matte. Steamer *Berthier*—Captain, A. Robillard; Engineer, E. Damase. Steamer *Chambly*. Steamer *Terrebonne*—Captain, Chas. Lavoilette; Engineer, E. Beaucage. Steamer *Longueuil*—Captain, H. Mandeville. Steamer *Boucherville*—Captain, J. E. Brossard; Engineer, A. Crepeau. Steamer *Hosanna*—Captain, J. Gouin; Engineer, J. St. Michel. Steamer *Laprairie*—Captain, D. McLean; Engineer, C. Hamel. Steamer *Varannes*—Captain, J. Foubert. Steamer *Fire Fly*—Captain, F. Crepeau; Engineer, A. Gendron. Steamer *St. Irene*—Engineer, J. Hamelin. Steamer *Murray Bay*—Captain, A. Fortin; Engineer, Nap. Beaudoin. Steamer *Hamilton*—Captain, J. P. Stephenson; Engineer, B. Pinal. Steamer *Chicoutimi*—Engineer, G. Gagnon. Steamer *Tadoussac*—Captain, Jos. Dugal; Engineer, M. Latulippe.

Riebanach, Fritz, Alpena, Mich. Steamer *Desmond*—Captain, Moses Humphrey; Engineer, D. C. Conway.

Robertson, George, Grand Haven, Mich. Steamer *Sidney O. Neff*—Captain, Antony Greilick; Engineer, Frank Greilick.

Robinson, John W., N. Tonawanda, N. Y. Steamer *C. H. Green*. Schooner *Genoa*.

Runnels, H. E., Port Huron, Mich. Steamer *Maggie Duncan*—Captain, James Cassin; Engineer, Gill McLellan. Steamer *O. O. Carpenter*—Captain, Guy Geel; Engineer, Joseph Cadotte. Schooner *Favorite*—Captain, L. Sinclair. Schooner *E. E. Tyson*—Captain, C. W. Annis.

Rutland Transit Co., Ogdensburg, N. Y. Steamer *J. R. Langdon*—Captain, Harvey Brown; Engineer, Chas. H. Cotter. Steamer *H. R. James*—Engineer, A. J. Kinch. Steamer *A. McI'ttie*—Captain, Thos. Hough; Engineer, W. J. Brown. Steamer *Gov. Smith*—Captain, W. S. Shay; Engineer, L. O. Willix. Steamer *F. H. Prince*—Captain, E. B. Shay; Engineer, John Alexander. Steamer *W. A. Haskell*—Captain, W. H. Plumb; Engineer, H. Goodheart. Steamer *Wm. J. Averell*—Captain, John Smith; Engineer, Frank Doyle.

Ryan, Thos. M., 23 W. Swan St., Buffalo, N. Y. Schooner *J. C. Magill*. Schooner *Hanaford*.

Saginaw Bay Transportation Co., 714 Seneca St., Cleveland. Steamer *Rhoda Emily*—Captain, Winslow Randall; Engineer, John Broderick. Steamer *D. Leuty*—Captain, Jos. Albano; Engineer, Jos. D. Budd. Schooner *R. Bottsford*—Captain, A. D. Sheldon. Schooner *Hattie*—Captain, A. Papinaw.

VESSELS ON THE GREAT LAKES IN 1905

Sanborn, Wm. H., Alpena, Mich. Steamer *Alaska* (small)—Captain, Chas. Marscerro; Engineer, John Dashaw.

Sands, Louis, Salt & Lumber Co., Manistee, Mich., Geo. M. Clifton, Secretary— Steamer *Wotan*—Captain, Jacob Berentsen; Engineer, Wm. Brice. Steamer *Maggie Marshall*—Captain, A. Olson; Engineer, John Peterson. Schooner *Isabella Sands*—Captain, J. L. Jensen. Schooner *A. W. Luckey*—Captain, Anton Erickson. Schooner *Arendal*—Captain, Nels C. Thompson.

Sandusky Lumber & Box Co., Sandusky, O. Steamer *Linden*—Captain, J. H. Warwick; Engineer, R. A. Campbell. Schooner *Chas. Wall*—Captain, Daniel Nathan.

Schlosser, William, Milwaukee, Wis. Schooner *City of Sheboygan*—Captain, I. Tellefson. Schooner *Minerva*—Captain, Hans Peterson. Schooner *Levi Grant*—Captain Nels G. Norem. Schooner *Wolverine*—Captain, Chas. Hansen.

Scott, Sidney, Mt. Clemens, Mich. Steamer *Algria*.

Seither, Frank, President, England Trans. Co., 11 Joseph St., Cleveland. Steamer *R. W. England*—Captain, R. W. England; Engineer, John Booth.

Seither, Frank, 11 Joseph St., Cleveland. Schooner *V. H. Ketchum*—Captain, Dan Wilman.

Seither Transit Co., 11 Joseph St., Cleveland. Steamer *G. J. Grammer*—Captain, Jos. A. Powell; Engineer, John Goulden.

Shannon & Garey, Saginaw, Mich. Steamer *Robt. Holland*—Captain, W. P. Rattray; Engineer, Jake Ostor. Steamer *Homer Warren*—Captain, Chas. Rattray; Engineer, L. Van Lew. Schooner *Exile*—Captain, John H. Trudo. Schooner *White & Friant*—Captain, James Hall. Schooner *Ida Keith*—Captain, Robt. Rabideau. Schooner *Wm. Crosthwaite*—Captain, John Mathison. Schooner *T. G. Lester*—Captain, Thos. B. Garey. Schooner *T. H. Cahoon*—Captain, Chas. E. Garey.

Shackett, J. M., Manager, Marine City, Mich. Steamer *Faustin*—Captain, P. L. Williamson; Engineer, Arthur Dwight.

Sharp, W. H., Bay City, Mich. Steamer *J. P. Donaldson*—Captain, James Connelly; Engineer, John Fettig. Steamer *Maine*—Captain, R. Burrington; Engineer, Jos. Grandson. Schooner *A. W. Wright*—Captain, Thos. Thorkildson.

Shea, John, Duluth, Minn. Schooner *Elgin*—Captain, John Anderson.

Sheadle, J. H., Manager, Cleveland Cliffs Iron Co., Cleveland, Thos. B. Kelley, Superintending Engineer. Steamer *Wm. G. Mather*—Captain, John M. Johnston; Engineer, Thos. Durkin. Steamer *Pontiac*—Captain, Thos. E. Murray; Engineer, Wm. Naylon. Steamer *Frontenac*—Captain, C. A. Anderson; Engineer, J. B. Hart. Steamer *Cadillac*—Captain, Wm. H. Hoffman; Engineer, R. W. Fink. Steamer *Choctaw*—Captain, F. D. Perew; Engineer, Thos. J. Rees. Steamer *Andaste*—Captain, W. S. Cody; Engineer, J. F. Kalb. Steamer *Pioneer*—Captain, C. R. Ney; Engineer, C. B. Keeler. Steamer *Falcon*—Captain, E. H. Bennett; Engineer, W. B. Rowe. Schooner *Chattanooga*—Captain, Thos. Kimmitt.

Sheadle, J. H., Manager, Hopkins Steamship Co., Cleveland. Steamer *Centurion*—Captain, C. E. Sayre; Engineer, Thos. B. Kelley.

Sheadle, J. H., Manager, Presque Isle Trans. Co., Cleveland. Steamer *Presque Isle*—Captain, H. H. Parsons; Engineer, Fred Schwartz. Steamer *Angeline*—Captain, S. A. Lyons; Engineer, C. H. Menmuir. Steamer *Peter White*—Captain, S. N. Murphy; Engineer, Fred D. Philip.

Sheadle, J. H., Manager, St. Clair Steamship Co., Cleveland. Steamer *Kaliyuga*—Captain, F. L. Tonkin; Engineer, Charles A. Sharpe.

Sheehan, Capt. Jas., 970 4th Ave., Detroit. Schooner *Sophia Minch*—Captain, J. E. Sheehan.

THE SAINT MARY'S CANAL

- Shilling, Warren C., Green Bay, Wis.** Steamer *City of Green Bay*—Captain, P. S. Raulett; Engineer, Jas. Prevost. Steamer *Two Myrtles*—Captain, John Johnson; Engineer, Andrew Johnson.
- Shoal Water Transportation Co., Mt. Clemens, Mich.** Steamer *Norwalk*—Captain, Frank Goodrow; Engineer, Joe Bodore.
- Sickelsteel, M. E., 1326 15th St., Detroit.** Schooner *L. S. Hammond*—Captain, G. G. Hackett.
- Sicken, M., Marine City, Mich.** Steamer *Geo. King*—Captain, Wm. Burns; Engineer, Wm. Sicken. Steamer *S. K. Martin*—Captain, Hector Brown; Engineer, M. Owen. Steamer *M. Sicken*—Captain, John Kuhn; Engineer, J. McDonald. Schooner *Teutonia*—Captain, H. Lawrence. Schooner *Thos. Gawn*—Captain, J. Lawrence. Schooner *D. Pendell*—Captain, J. Chartran. Schooner *Melvina*—Captain, H. Holland. Schooner *C. Spademan*—Captain, J. Bond. Schooner *Grace Whitney*—Captain, J. Bond. Schooner *E. J. McVea*—Captain, F. McMann. Schooner *Levi Rawson*—Captain J. Kobel. Schooner *St. Joseph*—Captain, Jos. Laffrey.
- Smith, Frank W., Foot Mineral St., Milwaukee, Wis.** Steamer *E. M. Peck*—Captain, A. C. Callam; Engineer, Harold Stokke. Steamer *Topeka*—Captain, T. E. Clark; Engineer, R. S. Mott. Steamer *Pueblo*—Captain, T. W. Lawler; Engineer, Wm. Risch. Steamer *Omaha*—Captain, Frank Brown; Engineer, R. Elhammer. Steamer *Mary H. Boyce*—Captain, John D. Wanwig; Engineer, H. Stedman.
- Smith, John, Manistee, Mich.** Steamer *Helen C.*—Captain, John H. Madden; Engineer, Richard Winkler. Steamer *M. B. Covell*—Captain, Ed. Sweels; Engineer, Ira B. McMillan.
- Smith, L. P. & J. A., Cleveland, O.** Steamer *Rhoda Stewart*—Captain, G. H. Ferguson; Engineer, L. Gelinas. Schooner *Wm. Grandy*—Captain, David Gleason. Schooner *Constitution*—Captain, A. McWilliams. Schooner *H. P. Baldwin*—Captain, Wm. Kelly. Schooner *Mikado*—Captain, F. Jennings. Schooner *Racine*—Captain, Garant. Schooner *Agnes L. Potter*—Captain, John Nelson.
- South Side Lumber Co., Chicago.** Steamer *Philetus Sawycr*—Captain, J. F. Higgle; Engineer, Geo. Quackenbush.
- Spence Bros., 2923 Euclid Ave., Cleveland.** Steamer *H. E. Runnels*—Captain, Geo. McLeod; Engineer, John Bloom. Steamer *Aztec*—Captain, Ed. Mattison; Engineer, — Welch. Schooner *Miztec*—Captain, Harry Larsen.
- Squires, J. W., Marine City, Mich.** Steamer *Jim Sheriffs*. Schooner *James Mowatt*.
- St. Lawrence & Chicago Steam Navigation Co., Toronto, Can., H. Hagerty, Manager.** Steamer *W. D. Mathews*—Captain, James Ewart; Engineer, E. J. O'Dell. Steamer *Iroquois*—Captain, James McMaugh; Engineer, William Harwood. Steamer *Algonquin*—Captain, William H. Wright; Engineer, John W. Taylor. Steamer *Rosedale*—Captain, P. J. Shaw; Engineer, James Findlay.
- Star-Cole Line Steamers, Detroit, A. R. Lee, General Manager.** Steamer *Arundell*—Captain, Byron Armstrong; Engineer, J. A. Braman, Sr. Steamer *Idlewild*—Captain, Jos. Lockeridge; Engineer, J. C. Doran. Steamer *Darius Cole*—Captain, John J. Cassin; Engineer, C. L. Barron.
- Stephenson, Isaac, Marinette, Wis.** Steamer *I. Watson Stephenson*—Captain, Daniel Wall; Engineer, Joseph Nold.
- Stephenson, John, Detroit, Mich.** Steamer *Miami*—Captain, H. Huyser; Engineer, John Elsey. Steamer *W. P. Thew*—Captain, Wm. J. Jooek; Engineer, J. Shamcroft. Steamer *Hattie*—Captain, Geo. King; Engineer, Wm. Bushay. Schooner *A. Gebhardt*—Captain, Ed. Biddlecomb.
- Stewart Transportation Co., Detroit, A. E. Stewart, Manager.** Steamer *A. E. Stewart*—Captain, Fred Stewart; Engineer, Robert Lacey.

VESSELS ON THE GREAT LAKES IN 1905

Sullivan, L. S., Manager, Toledo, O. Steamer *David W. Rust*—Captain, Wm. J. Seaver; Engineer, Wm. Hastey. Schooner *C. C. Barnes*—Captain, G. E. Nelson. Schooner *Geo. G. Houghton*—Captain, Geo. R. Bonnab. Schooner *John Schuette*—Captain, John O. Johnson.

S-W Trans. Co., Cleveland, Chas. T. Williams, Manager. Steamer *A. G. Lindsey*—Captain, C. H. Woodford; Engineer, John Duchene.

Sylvester Bros., Toronto, Can. Schooner *St. Louis*—Captain, Geo. Williams.

Taylor, M. H., Erie, Pa. Steamer *Niagara*—Captain, M. A. Budd; Engineer, A. A. Turner.

Teagan Bros., Detroit, Mich. Steamer *Samoa*—Captain, J. B. Maddock; Engineer, James Bennett. Steamer *H. S. Pickands*—Captain, H. B. Leonard; Engineer, Fred Vieau. Steamer *Chancey Hurlburt*—Captain, Jos. Parsons; Engineer, Frank Langer. Schooner *D. K. Clint*—Captain, Bert Peltier.

R. P. Thompson, Port Huron, Mich. Schooner *Koal Kabin*—Captain, Ed. Phillips.

Tomlinson, G. A., Board of Trade, Duluth, Geo. F. Coleman, Superintending Engineer. Steamer *James E. Davidson*—Captain, F. A. Fick; Engineer, Frank Schwartz. Steamer *Hoover & Mason*—Captain, W. D. Ames. Steamer *Sylvania*—Captain, J. W. Ehrhart; Engineer, T. H. Welsh. Steamer *Socapa*—Engineer, Wm. Millington. Steamer *Ball Brothers*—Captain, D. P. Craine; Engineer, A. R. Fortier. Steamer *Sahara*—Captain, W. G. Maltby; Engineer, F. A. Steadley. Steamer *Saxona*—Captain, Geo. W. McCullough; Engineer, F. N. Baldwin. Steamer *Sinaloa*—Captain, C. Z. Montague; Engineer, M. J. McAuliffe. Steamer *Sonoma*—Captain, W. C. Brown; Engineer, R. J. Close. Steamer *Yosemite*—Captain, A. H. Reed; Engineer, W. H. Ballard. Steamer *Kensington*—Captain, Frank Lewis; Engineer, F. T. Goodwin. Steamer *Sonora*—Captain, C. C. Tousley; Engineer, Byron Beerman. Steamer *Sultana*—Captain, W. B. Todd; Engineer, W. M. McCarron.

Tonawanda Barge Line, N. Tonawanda, N. Y., Chas. Weston, Manager, L. S. DeGraf, Purchasing Agent. Steamer *A. Weston*—Captain, D. McKenzie; Engineer, W. Boyce. Steamer *F. R. Buell*—Captain, C. W. Woodgrift; Engineer, Edw. Cottrell. Schooner *A. Stewart*—Captain, Frank Laforge. Schooner *Eleanor*—Captain, Fred Chamberlin. Schooner *Jennett*—Captain, Geo. Laforge.

Tonawanda Iron & Steel Co., N. Tonawanda, N. Y. Steamer *Fleetwood*—Captain, G. W. Honner; Engineer, Harvey Depuy. Steamer *John F. Eddy*—Captain, John R. Hesson; Engineer, W. J. Cunningham. Steamer *Oceanica*—Captain, Thos. G. VanDusen; Engineer, Rudolph Shinsky. Steamer *Geo. Spencer*—Captain, Frank Conlin; Engineer, H. D. Fifield. Steamer *Clyde*—Captain, Burt Ward; Engineer, E. H. Parry. Steamer *Veronica*—Captain, John G. McIntosh; Engineer, Abraham Wood. Steamer *C. F. Curtis*—Captain, F. S. Forton; Engineer, James Walsh. Steamer *Fred Mercer*—Captain, J. T. Kenney; Engineer, J. A. Westrick. Steamer *H. E. Packer*—Captain, Geo. H. Lane; Engineer, Fred Hebard. Schooner *B. L. Pennington*—Captain, C. C. Hanley. Schooner *Moravia*—Captain, Peter Keischgens. Schooner *Amboy*—Captain, Jos. A. Thodey. Schooner *N. C. Holland*—Captain, J. H. Christie. Schooner *T. S. Fassett*—Captain, John Bourkland.

Toomey, Daniel F., Dunkirk, N. Y. Steamer, *City of Grand Rapids*—Captain, John W. Averill.

Turbine Steamship Co., Hamilton, Ont. Steamer *Turbinia*—Captain, B. W. Bougard; Engineer, A. White.

Union Steamboat Line, Buffalo, N. Y., T. T. Morford, Manager, Henry C. Jordan, Chief Engineer. Steamer *Starrucca*—Captain, James R. Gibson; Engineer, Alex. A. Brown. Steamer *Ramapo*—Captain, F. W. Hoehn; Engineer, Henry Johnson. Steamer *Chemung*—Captain, J. A. McDonald; Engineer, Nelson Johnson. Steamer *Owego*—Captain, F. W. McQuilkin; Engineer, J. C. Tenant. Steamer *Tioga*—Captain, John C. Clark; Engineer, Wm. Hayes. Steamer *Binghamton*—Captain, F. R. Gebhard; Engineer, John Caul. Steamer *Rochester*—Captain, O. P. Finegan; Engineer, E. M. Carpenter. Steamer *New York*—Captain, Joseph Acton; Engineer, E. T. Jenkins.

THE SAINT MARY'S CANAL

- U. S. Transportation Co., 1007-9-11 Rockefeller Bldg., Cleveland, E. Hull, Superintending Engineer, 332 15th St., Buffalo, N. Y.** Steamer *L. C. Smith*—Captain, Alex. Forbes; Engineer, Robt. Leach. Steamer *Hurlbut W. Smith*—Captain, J. H. Driscoll; Engineer, Wm. Roach. Steamer *William Nottingham*—Captain, Sidney Le Beau; Engineer, John Courtney. Steamer *Geo. B. Leonard*—Captain, Geo. W. Pierce; Engineer, Geo. Oldman. Steamer *Monroe C. Smith*—Captain, Chas. D. Woodward; Engineer H. J. Gregg. Steamer *B. Lyman Smith*—Captain, Frank Boyer; Engineer, John Davidson. Steamer *Wilbert L. Smith*—Captain, H. L. Mills; Engineer, Jos. Taylor. Steamer *Horace S. Wilkinson*—Captain, A. W. Stalker; Engineer, W. Beckbissinger. Steamer *Chas. M. Warner*—Captain, F. H. Reid; Engineer, Geo. Milne. Steamer *W. W. Brown*—Captain, J. H. Sinclair; Engineer, Harry Vaughn. Steamer *William H. Gratiwick*—Captain, James Riley; Engineer, Allen Lansphere. Steamer *A. G. Brower*—Captain, Wm. H. Blottner; Engineer, Edw. Reading.
- Cowle Transit Co., 1007-9-11 Rockefeller Bldg., Cleveland.** Steamer *John B. Cowle*—Captain, E. T. Rattray; Engineer, Chas. Couchaine.
- Mona Transportation Co., 1007-9-11 Rockefeller Bldg., Cleveland.** Steamer *Geo. Presly*—Captain, F. C. Folsom; Engineer, Geo. Masters.
- Lyman C. Smith Trans. Co., 1007-9-11 Rockefeller Bldg., Cleveland.** Steamer *Lyman C. Smith*—Captain, R. J. Lyons; Engineer, E. Hull.
- Vance & Co., David, Managers, Interocean Navigation Co., Milwaukee, Wis.** Steamer *Maryland*—Captain, Timothy Kelly; Engineer, M. Conley. Steamer *Manchester*—Captain, Ralph Nutting; Engineer, Jas. Grant.
- Vance & Co., David, Managers, Milwaukee Steamship Co., Milwaukee, Wis.** Steamer *F. Schlesinger*—Captain, Edw. Brownell; Engineer, R. Pipkorn.
- Vance & Co., David, Managers, Wisconsin Steamship Co., Milwaukee, Wis.** Steamer *F. L. Vance*—Captain, D. S. Vail; Engineer, E. Jahn. Steamer *R. P. Flower*—Captain, Everest Zwemer; Engineer, Daniel Darcey.
- Volunteer Transit Co., Perry-Payne Bldg., Cleveland.** Steamer *Chas. Beatty*—Captain, John Milne; Engineer, Gilbert McPhail.
- Vulcan Transportation Co., Detroit, Jas. Findlater, Secretary.** Steamer *R. Hackett*. Schooner *Wm. McGregor*.
- Waldo, L. C., Manager, Northwestern Trans. Co., Detroit.** Steamer *Harvey H. Brown*—Captain, D. Girardin; Engineer, Nicklas Anderson. Steamer *Fayette Brown*—Captain, D. Girardin, Jr.; Engineer, Robt. Cummings. Steamer *S. R. Kirby*—Captain, Thos. H. Sanders; Engineer, Chas. E. Colins. Schooner *Geo. E. Hartnell*—Captain, L. C. Allen.
- Waldo, L. C., Manager, Roby Trans. Co., Detroit.** Steamer *L. C. Waldo*—Captain John Duddleson; Engineer, N. C. Allen.
- Walczak, Stephen, 812 Greenwood St., Milwaukee, Wis.** Schooner *L. B. Coates*—Captain, H. Brandt.
- Wallace & Cunningham Transit Co., Detroit, Mich., James I. Wallace, President.** Steamer *W. B. Morley*—Captain, John McAlpin; Engineer, Chas. Monroe.
- Wanwig, A. C., 79 Evergreen Ave., Chicago.** Steamer *J. D. Marshall*—Captain, A. C. Wanwig; Engineer, Christ Dahl.
- Warde, John J., 419 Oak St., Chicago.** Steamer *Niko*—Captain, Thomas Beggs; Engineer, John Collins. Schooner *Annie M. Petersen*—Captain, Chas. Bough.
- West Division Steamship Co., Chicago, D. Sullivan & Co., Managers.** Steamer *Fred Pabst*—Captain, D. C. Sullivan; Engineer, James Rossan. Steamer *W. H. Wolf*—Captain, J. O. Lolleau; Engineer, W. Reardon. Schooner *Armenia*—Captain, Geo. M. Dennis.

VESSELS ON THE GREAT LAKES IN 1905

Western Transit Co., Buffalo, N. Y., E. T. Douglas, Manager. Steamer *Auburn*. Steamer *Boston*—Captain, H. L. Dennis; Engineer, Patrick Welch. Steamer *Buffalo*—Captain, John Fisher; Engineer, Jas. Sangers. Steamer *Chicago*—Captain, Thos. Slattery; Engineer, John W. Rainey. Steamer *Commodore*—Captain, M. Folan; Engineer, John Metke. Steamer *Duluth*—Captain, E. R. Jones; Engineer, F. A. Miller. Steamer *Mikwaukee*—Captain, F. D. Osborn; Engineer, J. W. Mark. Steamer *Mohawk*—Captain, Henry Murphy; Engineer, C. L. Murray. Steamer *Rome*. Steamer *Superior*—Captain, Donald Gillies. Steamer *Syracuse*—Captain, John Kennedy; Engineer, Dan Donohue. Steamer *Troy*—Captain, Robert Murray; Engineer, Fred W. Hale. Steamer *Utica*—Captain, John Davis; Engineer, Henry Hess. Steamer *Yonkers*. Barge *Ben Brink*—Captain, Alex. Ruske. Barge *Grey Oak*—Captain, Rodman Almy.

Whitaker, Byron, Detroit, Mich. Steamer *Byron Whitaker*—Captain, James P. Stewart; Engineer, Dexter Blauvelt.

White Star Line, Detroit, Mich., B. W. Parker, General Manager, Winfield Dubois, Chief Engineer. Steamer *Tashmoo*—Captain, Burt S. Baker; Engineer, Winfield Dubois. Steamer *Greyhound*—Captain, Meikelham; Engineer, David Maxwell. Steamer *City of Toledo*—Captain, J. J. Stover; Engineer, M. J. Gilligan. Steamer *Owana*—Captain, Harry Tyrie; Engineer, C. H. McCarten.

White, Guy, N. Tonowanda, N. Y. Steamer *Edward Smith*—Captain, Chas. D. Miller; Engineer, Chas. C. Smith.

White, James A., N. Tonawanda, N. Y. Steamer *Three Brothers*—Captain, Sam Christopher; Engineer, George Heath.

Willoughby, Capt. W. J., Goderich, Ont. Steamer *Benton*—Captain, W. J. Willoughby; Engineer, Richard Baxter.

Wilson Transit Line, Cleveland, O., Rockefeller Building. Steamer *Henry W. Oliver*—Captain, W. W. Dawley; Engineer, Frank C. Stoeber. Steamer *Capt. Thos. Wilson*—Captain, J. S. Wood; Engineer, Fred Harmon. Steamer *Andrew Carnegie*—Captain, Daniel Buie; Engineer, James F. Derrig. Steamer *W. D. Rees*—Captain, E. R. Morton; Engineer, Chas. V. Annable. Steamer *Yuma*—Captain, C. H. Francke; Engineer, John Heinkelman. Steamer *Spokane*—Captain, J. McArthur; Engineer, W. E. Donovan.

Wineman, Henry, Jr., Detroit, Mich. Steamer *City of Berlin*. Steamer *Tampa*. Steamer *Raleigh*. Steamer *Tokio*. Schooner *Aurora*.

Wisconsin Transportation Co., Sheboygan, Wis. Steamer *Brazil*—Captain, R. Rieboldt; Engineer, A. J. Wilson.

Wolvin, A. B., Manager, Acme Steamship Co., Duluth, Minn., Joseph F. Hayes, Superintending Engineer. Steamer *Augustus B. Wolvin*—Captain, J. W. Narcross; Engineer, Theo. A. Meyers. Steamer *James C. Wallace*—Captain, Frank C. Rae; Engineer, Andrew Haas.

Wolvin, A. B., Manager, Great Lakes & St. Lawrence Trans. Co., Duluth, Minn., Jno. F. Hayes, Superintending Engineer. Steamer *A. N. Marshall*—Captain, John Duncanson; Engineer, Geo. McMonagle. Steamer *John Crerar*—Captain, Alex. Craigie; Engineer, John Busted. Steamer *John Lambert*—Captain, Ralph Gleason; Engineer, Wm. T. Riley. Steamer *Robert Wallace*—Captain, D. A. Kiah; Engineer, Geo. E. Willard. Steamer *A. D. Davidson*—Captain, Hugh Hagen; Engineer, W. N. Newcomb. Steamer *S. N. Parent*—Captain, J. W. Goodrich; Engineer, J. W. Drysdale. Steamer *H. G. Dalton*—Captain, W. D. Waite; Engineer, Guy L. Barnhardt. Steamer *J. S. Keefe*—Captain, Dan Barry; Engineer, Geo. Winters. Steamer *John Sharples*—Captain, J. F. Johns; Engineer, L. W. Griggs. Steamer *George C. Howe*—Captain, Frank C. Pratt; Engineer, J. H. Norton.

THE SAINT MARY'S CANAL

Wolvin, A. B., Manager, Peavey Steamship Co., Duluth, Minn., Joseph F. Hayes, Superintending Engineer. Steamer *Frank H. Peavey*—Captain, A. G. Tappan; Engineer, James Patterson. Steamer *George W. Peavey*—Captain, L. E. Boyce; Engineer, A. L. Roberts. Steamer *F. T. Heffelfinger*—Captain, John Tower; Engineer, W. L. Sperry. Steamer *Frederick B. Wells*—Captain, Alva Shaver; Engineer, George A. Gardner.

Wolvin, A. B., Manager, Provident Steamship Co., Duluth, Minn., Joseph F. Hayes, Superintending Engineer. Steamer *James H. Hoyt*—Captain, W. A. McLeod; Engineer, W. A. Moudy. Steamer *D. G. Kerr*—Captain, E. D. Ballentine; Engineer, Gilbert Patterson. Steamer *J. H. Reed*—Captain, F. P. Houghton; Engineer, James A. McPhee. Steamer *D. M. Clemson*—Captain, S. R. Chamberlain; Engineer, Jay A. Popp.

Young, A. J., Marine City, Mich. Schooner *Homer*.



A LAKE SAILOR

List of United States Officers Connected with the Saint Marys Falls Canal

WAR DEPARTMENT OFFICE OF THE CHIEF OF ENGINEERS

Washington, December 27, 1906.

Sir:

1. In response to your recent oral request for a list of all United States officers that have been connected with the work of construction, etc., of the St. Marys Falls Canal, Mich., I take pleasure in sending herewith a memorandum containing the desired data since the year 1856, so far as shown by the records of this office, and a printed copy of Appendix JJ of the Annual Report of the Chief of Engineers for 1886, which contains on page 1792, et seq., an historical sketch of the improvement of the river, including the canal.

2. The original survey for the so-called "State" canal was made by Capt. Augustus Canfield, of the Corps of Topographical Engineers of the Army, and the work of construction was under his superintendence between March 31, 1853, and the day of his death, April 18, 1854. During this period he also had charge of the Government improvements at St. Clair Flats, Mich., and it is presumed that, while performing these duties, he received his regular pay, etc., as an officer of the Army from the general pay fund disbursed by the Paymaster-General. It is probable that in the absence of special legislation, the then existing law would have prevented him from receiving compensation from the State in addition to his Army pay, and such enabling legislation does not appear to have been enacted by Congress.

3. It will be seen from the historical sketch that the first Congressional appropriation of money for improvement of the "river" was made in July, 1856, and the first for the "canal" proper in 1870, the appropriation of 1856 having been based upon an estimate prepared by Capt. J. N. Macomb, Topographical Engineers, and spent under Capt. A. W. Whipple, Topographical Engineers. Maj. O. M. Poe, Corps of Engineers, was in charge of the improvement when the first appropriation was provided for the canal.

THE SAINT MARY'S CANAL

4. As the canal practically includes those parts of the river channels below that have been improved through shoals of sand, clay, bowlders, etc., the accompanying list embraces the entire period of the combined improvements under the auspices of the General Government. It is impracticable to include in the list the names of the United States assistant engineers that have been employed upon the work from time to time, and it is suggested that, if such data be desired, you correspond with the district officer, Col. Chas. E. L. B. Davis, Corps of Engineers, in regard thereto; his address being Jones Building, Detroit, Mich.

By direction of the Chief of Engineers:

Very respectfully,

H. F. HODGES,
Major, Corps of Engineers.

Mr. Charles Moore.

LIST OF UNITED STATES OFFICERS WHO HAVE BEEN CONNECTED WITH THE WORK OF CONSTRUCTION, ETC., OF THE SAINT MARY'S FALLS CANAL, MICH., SINCE 1856

[Names of United States assistant engineers are not included.]

"T. E." refers to Corps of Topographical Engineers, and "C. E." to Corps of Engineers.

Year	Name of Officer in Charge
1856 to 1861.....	Capt. A. W. Whipple, T. E.
1861 to 1865.....	During the years of the civil war no funds were available for improvement and nothing was done beyond the making of surveys of the part of the river that had already been dredged. This survey work was done in 1863 and 1864 under the direction of the United States Lake Survey.
1866 to 1870.....	Col. T. J. Cram, C. E.; assistants at different times during this period, Maj. F. U. Farquhar, C. E.; Capts. F. Harwood, C. E.; G. J. Lydecker, C. E.; and H. C. Wharton, C. E.
1870 (about 2 months).	Maj. Walter McFarland, C. E.
1870 to 1873.....	Maj. O. M. Poe, C. E.
1873 to 1878.....	Maj. G. Weitzel, C. E.; assistant during part of this period, Capt. A. N. Lee, C. E.

UNITED STATES ENGINEER OFFICERS

Year	Name of Officer in Charge
1878 (April to October)	Capt. A. Mackenzie, C. E. (during temporary absence of Major Weitzel).
1878 to 1882.....	Lieut. Col. G. Weitzel, C. E.; assistants at different times during this period, Capts. A. Mackenzie, C. E.; and B. D. Greene, C. E.
1882 to 1883.....	Maj. F. U. Farquhar, C. E.
1883 (July 3 to Aug. 10)	Capt. D. W. Lockwood, C. E. (in temporary charge).
1883 to 1895.....	Col. O. M. Poe, C. E.; assistants at different times during this period, Lieuts. H. F. Hodges, C. E.; W. E. Craighill, C. E.; C. S. Riché, C. E.; W. L. Sibert, C. E.; and J. B. Cavanaugh, C. E., and Capt. C. F. Palfrey, C. E.
1895 (Oct. 3) to 1896 (May 7)	Lieut. J. B. Cavanaugh, C. E. (in temporary charge).
1896 to 1902.....	Col. G. J. Lydecker, C. E.; assistants at different times during this period, Lieuts. J. B. Cavanaugh, C. E.; James F. McIndoe, C. E.; and Spencer Cosby, C. E.
1902 to 1904.....	Lieut. Col. W. H. Bixby, C. E.
1904 (Jan. 30 to Mar. 31)	Maj. W. L. Fisk, C. E. (in temporary charge).
1904 to 1906 (to date, Dec. 8, 1906).....	Col. Chas. E. L. B. Davis, C. E.; assistant during part of this period, Lieut. Lewis H. Rand, C. E.



DREDGING A CHANNEL THROUGH AN ISLAND

Improvement of Saint Marys River and Saint Marys Falls Canal

PRINCIPAL CONTRACTS SINCE 1870.

PREPARED IN THE OFFICE OF THE CHIEF OF ENGINEERS, U. S. A.

Date of contract.	Contractor's name and residence.	Purpose.	Date of final payment.	Total amount paid.
Oct. 8, 1870	W. W. & E. T. Williams, Manlius, N. Y.	Removing obstructions in St. Mary's River.	Dec. 8, 1870	\$ 4,800.00
Oct. 20, 1870	Barker, Williams & Bangs, Syracuse, N. Y.	Enlarging and revetting canal prism and moving guard gates.	June 7, 1872	136,199.95
Feb. 9, 1871	Barker & Williams, Fayetteville and Manlius, N. Y.	Enlarging and revetting canal prism.	Dec. 23, 1874	97,797.80
Dec. 7, 1871	Barker & Williams, Fayetteville and Manlius, N. Y.	Enlarging and revetting canal prism.	July 28, 1874	236,887.02
May 19, 1873	Boyle & Roach, Cincinnati, Ohio.	Excavating pit and laying foundation for lock	Nov. 6, 1875	307,323.80
Sept. 29, 1874	C. C. Barker & Son, Syracuse, N. Y.	Excavating and building revetment on north side of canal near locks.	May 23, 1875	18,344.36
Mar. 29, 1875	August Wallbaum, Chicago, Ill.*	Furnishing face-stone for lock.
May 22, 1875	C. C. Barker & Son, Syracuse, N. Y.	Excavating and building landing piers at south side of canal entrance.	June 21, 1876	14,117.38
May 29, 1875	Boyle & Roach, Cincinnati, Ohio.	Constructing masonry of lock.	Nov. 8, 1879	241,257.09
May 11, 1876	Henry Van Vleck, Syracuse, N. Y.	Furnishing face-stone for lock.	Aug. 23, 1879	226,025.25
July 9, 1877	Charles S. Barker, Sault Ste. Marie, Mich.	Dredging at upper entrance to canal.	Oct. 8, 1881	29,495.70
Nov. 8, 1878	Larkin & Patrick, Midland City, Mich.*	Furnishing timber.	6,174.49
Nov. 11, 1878	E. A. Wetmore, Marquette, Mich.	Furnishing timber.	Nov. 28, 1881	20,933.79
Sept. 29, 1879	Charles S. Barker, Sault Ste. Marie, Mich.	Furnishing one dredge, one tug, and two scows for improvement of river.	June 17, 1880	2,171.38

* Contractor failed.

C O N T R A C T O R S

Date of contract.	Contractor's name and residence.	Purpose.	Date of final payment.	Total amount paid.
Sept. 30, 1879	Williams & Upham, L'Anse, Mich.	Furnishing one dredge, one tug, and two scows for improvement of river.	Oct. 23, 1880	16,249.37
Oct. 11, 1879	Charles S. Barker, Sault Ste. Marie, Mich.	Excavating in bay above dock.	Sept. 16, 1881	24,765.43
Jan. 9, 1880	Willard S. Pope, Detroit, Mich.	Furnishing iron and brass for lock-gates.	July 6, 1880	13,591.68
May 13, 1880	John Hickler, Buffalo, N. Y.	Furnishing two dredges, two tugs, and four scows for improvement of river.	Dec. 8, 1880	23,799.63
Sept. 22, 1880	Charles S. Barker, Sault Ste. Marie, Mich.	Excavating in channel through Lake George.	Feb. 9, 1883	39,505.38
Oct. 23, 1880	Charles S. Barker, Sault Ste. Marie, Mich.	Excavating and building pier near head of canal and opposite basin.	July 13, 1881	64,259.18
Feb. 28, 1883	John Hickler, Buffalo, N. Y.	Dredging at Middle Neebish, Hay Lake Channel.	Feb. 2, 1883	116,424.79
Aug. 13, 1884	Williams & Upham, L'Anse, Mich.	Furnishing one dredge, one tug, and two scows for Hay Lake Channel.	(†)	\$16,366.83
Sept. 5, 1884	John Hickler, Buffalo, N. Y.	Excavating at Middle Neebish, Hay Lake Channel.	Dec. 19, 1885	26,985.66
May 18, 1885	Hickler & Green, Sault Ste. Marie, Mich.	Excavating at Middle Neebish, Hay Lake Channel.	June 30, 1886	51,913.70
Dec. 22, 1886	Hickler & Green, Sault Ste. Marie, Mich.	Dredge, tug, and two dump scows.	Sept. 5, 1888	49,980.96
Dec. 22, 1886	Chauncey E. Mitchell, Ludington, Mich.	Lumber, bulkhead pier and cofferdam.	Dec. 10, 1887	37,428.92
Dec. 22, 1886	Ducharme, Fletcher & Co., Detroit, Mich.	Drift bolts and spikes.	May 28, 1887	4,651.23
Dec. 22, 1886	Chauncey E. Mitchell, Ludington, Mich.	Framing, placing, and filling crib piers.	Aug. 18, 1888	14,982.22
Dec. 22, 1886	Carkin, Stickney & Cram, East Saginaw, Mich.	Furnishing and placing puddling clay.	Sept. ..., 1889	36,077.56
June 24, 1887	Carkin, Stickney & Cram, East Saginaw, Mich.	Dredge, tug, and two dump scows, constructing cofferdam.	July ..., 1888	28,604.20
Dec. 24, 1886	Hickler & Green, Sault Ste. Marie, Mich.	Excavating Middle Neebish.	Nov. ..., 1888	131,564.93
April 3, 1888	Hickler & Green, Sault Ste. Marie, Mich.	Drilling and blasting.	July 16, 1888	8,308.50
Nov. 26, 1883	Luther E. Allen, Charlevoix, Mich.	Building Fort Brady Pier.	Oct. 26, 1889	50,898.73
Mar. 1, 1889	Collins & Farwell, Detroit, Mich.	Excavating a lock-pit.	July ..., 1891	192,876.22 *48,388.74
Oct. 30, 1888	C. F. & H. T. Dunbar, Buffalo, N. Y.	Excavating and building dike, Middle Neebish.	Dec. ..., 1890	290,751.52
Feb. 6, 1891	John Hickler & Son, Sault Ste. Marie, Mich.	Dredging channel and constructing dike.	Jan. 4, 1893	226,389.60

† Not yet completed.

‡ Excluding retained percentage.

T H E S A I N T M A R Y ' S C A N A L

Date of contract.	Contractors's name and residence.	Purpose.	Date of final payment.	Total amount paid.
Feb. 9, 1891	Hughes Bros. & Bangs, Syracuse, N. Y.	Furnishing material and building masonry of lock.	Dec. ..., 1893	110,577.89
Nov. 11, 1893	Hughes Bros. & Bangs, Syracuse, N. Y.	Furnishing material and building masonry of lock.	Jan. ..., 1895	36,614.05
Dec. 6, 1894	Hughes Bros. & Bangs, Syracuse, N. Y.	Furnishing material and building masonry of lock.	Aug. 17, 1895	273.20
Feb. 6, 1891	Dunbar & Sullivan, Buffalo, N. Y.	Dredging channel.	Aug. 16, 1894	222,466.54
Feb. 6, 1891	Carkin, Stickney & Cram, East Saginaw, Mich.	Dredging channel.	Nov. ..., 1893	153,047.24
Feb. 6, 1891	Carkin, Stickney & Cram, East Saginaw, Mich.	Dredging channel.	Aug. ..., 1893	92,402.87
Feb. 6, 1891	C. F. & H. T. Dunbar, Buffalo, N. Y.	Dredging channel.	Oct. 16, 1894	97,420.66
Feb. 6, 1891	Carkin, Stickney & Cram, East Saginaw, Mich.	Dredging channel.	Oct. ..., 1894	109,630.24
Mar. 7, 1891	Chas. Hebard & Son, Sault Ste. Marie, Mich.	Furnishing lumber and shingles.	Jan. 16, 1892	2,670.32
May 1, 1891	John H. Kilmaster & Co., Kilmaster, Mich.	Furnishing pine and hemlock timber.	Sept. 16, 1891	15,964.93
Sept. 28, 1891	Hughes Bros. & Bangs, Syracuse, N. Y.	Excavating pump well for lock.	Nov. 16, 1891	9,760.50
Oct. 28, 1891	Hughes Bros. & Bangs, Syracuse, N. Y.	Excavating to enlarge lock pit.	May 10, 1894	7,853.89
Oct. 29, 1891	King Iron Bridge & Mfg. Co., Cleveland, Ohio.	Furnishing and delivering gate anchorages.	Aug., 1892	20,477.64
Nov. 28, 1891	James R. Ryan, Sault Ste. Marie, Mich.	Delivering clay.	Feb. 17, 1892	4,483.48
Mar. 10, 1892	John P. McGuire, Cleveland, Ohio.	Furnishing valve frames.	Oct. 29, 1892	26,862.96
Mar. 25, 1892	Chas. Hebard & Son, Sault Ste. Marie, Mich.	Furnishing lumber.	Jan. 12, 1893	536.24
July 14, 1892	Dunbar & Sullivan, Buffalo, N. Y.	Excavating canal prism. Sec. 1.	Nov. 6, 1896	221,067.92
July 14, 1892	Dunbar & Sullivan, Buffalo, N. Y.	Excavating canal prism. Sec. 2.	April 27, 1896	213,801.65
Aug. 18, 1892	Hickler Bros, Sault Ste. Marie, Mich.	Furnishing dredge, tug, and scow.	Dec. 30, 1893	54,261.46
Dec. 31, 1892	R. J. Cram, Detroit, Mich.	Dredging Round Island Shoals.	Feb. ..., 1895	26,445.16
Dec. 31, 1892	C. E. Mitchell & Co., Ludington, Mich.	Dredging channel, Little Mud Lake.	Feb. 19, 1897	144,072.68
Dec. 31, 1892	John Hickler, Buffalo, N. Y.	Excavating channel, Sailors Encampment.	July 16, 1897	287,649.98
Dec. 31, 1892	John Hickler, Buffalo, N. Y.	Dredging a shoal in Mud Lake.	Feb. ..., 1894	44,753.87
Jan. 30, 1893	Hughes Bros. & Bangs, Syracuse, N. Y.	Lock floors, culverts, etc.	Aug. 17, 1895	274,802.77

C O N T R A C T O R S

Date of contract.	Contractors's name and residence.	Purpose.	Date of final payment.	Total amount paid.
Feb. 23, 1893	Hughes Bros. & Bangs, Syracuse, N. Y.	Snubbing hooks for lock.	June 7, 1893	1,598.40
June 17, 1893	R. J. Cram, Detroit, Mich.	Excavating channel at elbow, Lake George.	Dec. ..., 1893	7,661.42
May 10, 1893 Feb. 16, 1895	Hughes Bros. & Bangs, Syracuse, N. Y.	Turbine Power Plant.	July 22, 1896	37,817.04
Aug. 25, 1893	Hughes Bros. & Bangs, Syracuse, N. Y.	Excavating for pier.	June 11, 1894	2,567.59
Sept. 29, 1893	Willard S. Pope, Detroit, Mich.	Steel lock-gates.	Sept. ..., 1896	183,791.25
Oct. 20, 1893	Southwark Foundry & Mach. Co., Philadelphia, Pa.	Centrifugal pumps.	Aug. ..., 1896	25,250.50
Oct. 20, 1893 Mar. 21, 1895	Westinghouse, Church, Kerr & Co., Orange, N. J.	Driving machinery.	Aug. ..., 1896	16,375.00
Oct. 26, 1893 Nov. 21, 1895	The Babcock & Wilcox Co., Elizabethport, N. J.	Boilers for pumping plant.	Aug. ..., 1896	47,574.00
Feb. 12, 1894	John M. Lally, Sault Ste. Marie, Mich.	Constructing clay dam.	Sept. 17, 1895	9,093.20
Mar. 24, 1894	Michigan Brass & Iron Co., Detroit, Mich.	Gate-valves.	Oct. ..., 1894	2,390.00
Mar. 23, 1894	Simon Dumond, Sault Ste. Marie, Mich.	Excavating within cofferdam and building cribs.	Nov. ..., 1895	20,611.84
Aug. 11, 1894	Joseph Vernon Gearing, Detroit, Mich.	Constructing powerhouse and office building.	Nov. ..., 1897	117,527.00
Sept. 10, 1894 Nov. 16, 1895	John P. McGuire, Cleveland, Ohio.	Furnishing operating machinery.	Sept. ..., 1896	59,400.00
Mar. 7, 1895	R. J. Cram, Detroit, Mich.	Cleaning up shoals in Hay Lake.	Aug. ..., 1895	4,161.30
Mar. 7, 1895	Dunbar & Sullivan, Detroit, Mich.	Removing portion of shoal in Hay Lake.	Mar. 2, 1896	21,445.83
May 6, 1895	J. B. Sweatt, Sault Ste. Marie, Mich.	Constructing and equipping a quarters boat.	July .., 1895	3,300.00
June 15, 1895 May 25, 1896	James B. Donnelly, Buffalo, N. Y.	Removing material, movable dam, and lock approaches, and building cribs.	Aug. ..., 1897	194,042.32
July 29, 1895	F. S. Shurick, Marietta, Ohio.	Snubbing-posts.	Dec. 10, 1895	549.00
Sept. 14, 1895	Dunbar & Sullivan, Buffalo, N. Y.	Removing shoals, west approach to canal.	Sept. ..., 1897	49,863.08
Sept. 19, 1895	W. A. McGillis & Co., Chicago, Ill.	Removing shoal, east approach to canal.	Mar. 23, 1896	2,788.41
Sept. 19, 1895	W. A. McGillis & Co., Chicago, Ill.	Removing shoal in Mud Lake.	Nov. ..., 1897	11,832.12
Sept. 19, 1895	W. A. McGillis & Co., Chicago, Ill.	Removing shoal in Hay Lake.	Sept. ... 1897	42,083.36
Sept. 21, 1895	Harris T. Dunbar, Sault Ste. Marie, Mich.	Drilling holes in masonry of miter-sill.	Nov. 27, 1895	888.40

T H E S A I N T M A R Y ' S C A N A L

Date of contract.	Contractors's name and residence.	Purpose.	Date of final payment.	Total amount paid.
Sept. 21, 1895	Hickler Bros., Sault Ste. Marie, Mich.	Bolts, etc.	Dec. ..., 1895	511.71
Oct. 26, 1895	The Manhattan Cement Co, New York.	Furnishing cement.	June ..., 1896	3,540.00
Oct. 26, 1895	Russell Wheel & Foundry Co., Detroit, Mich.	Well gratings and snubbing buttons.	Jan. ..., 1896	2,313.52
June 29, 1896	Hickler Bros., Sault Ste. Marie, Mich.	Widening channel, foot of Hay Lake.	May 24, 1897	11,232.92
June 30, 1896	Hingston & Woods, Buffalo, N. Y.	Widening channel in Little Mud Lake.	Oct. ..., 1897	20,551.71
June 27, 1896	H. T. Dunbar, Buffalo, N. Y.	Widening channel in Hay Lake.	July ..., 1897	22,057.22
May 7, 1897	H. W. Hubbell & Co., Sault Ste. Marie, Mich.	Hire of dredge, tug, and two dump scows.	Dec. ..., 1897	17,257.20
July 30, 1897	Hickler Bros., Sault Ste. Marie, Mich.	Hire of derrick boat, etc.	Dec. 10, 1897	2,545.33
Sept. 13, 1897	Arthur H. Vogel, Milwaukee, Wis.	Excavating channel through Round Island Shoal No. 1.	Nov. ..., 1899	43,128.73
Sept. 13, 1897	M. Sullivan, Detroit, Mich.	Excavating channel through Round Island Shoal No. 2.	Feb. ..., 1900	89,711.79
Sept. 13, 1897	H. W. Hubbell & Co., Saginaw, Mich.	Dredging shoals, west approach to canal.	June 17, 1899	44,997.15
Sept. 13, 1897	Hickler Bros., Sault Ste. Marie, Mich.	Deepening and widening Middle Neebish channel.	July ..., 1899	141,253.66
Oct. 16, 1902	Soo Lumber Co., Sault Ste. Marie, Mich.	Fir timber.	Feb. ..., 1903	6,925.98
Oct. 27, 1902	The Lake Erie Dredging Co., Buffalo, N. Y.	Services, dredge, tug, and two scows.	Jan. ..., 1903	9,951.05
Oct. 27, 1902	Hickler Bros., Sault Ste. Marie, Mich.	Services, dredge, tug, and two scows.	Jan. ..., 1903	5,033.60
Nov. 7, 1902	Samuel O. Dixon, Milwaukee, Wis.	Services, dredge, tug, and two scows.	Aug. ..., 1903	15,532.80
Nov. 7, 1902	The Lake Erie Dredging Co., Buffalo, N. Y.	Services, dredge, tug, and two scows.	Dec. ..., 1903	32,544.50
Jan. 13, 1903	Louis Belanger, Sault Ste. Marie, Mich.	Delivering clay.	Mar. ..., 1903	1,123.20
Jan. 13, 1903	Percy H. Sheppard,	Delivering clay.	Mar. ..., 1903	1,203.93
Mar. 30, 1903	Hickler Bros., Sault Ste. Marie, Mich.	Services, dredge, tug, and two scows.	Dec. ..., 1903	28,242.85
April 21, 1903	The Lake Erie Dredging Co., Buffalo, N. Y.	Services, dredge, tug, and two scows.	Dec. ..., 1903	51,219.60
Sept. 8, 1903	H. W. Hubbell & Co., Saginaw, Mich.	Services, dredge, tug, and two scows.	Nov. ..., 1903	5,265.80
Sept. 17, 1903	Henry Hickler, Sault Ste. Marie, Mich.	Services of derrick.	Dec. ..., 1903	3,425.70
Dec. 17, 1903	M. Bennett, Sault Ste. Marie, Mich.	Delivering clay.	Mar. ..., 1904	1,386.00
April 11, 1904	Chas. Simono, Two Rivers, Wis.	Widening channel through Little Rapids.	Mar. ..., 1905	56,494.43

C O N T R A C T O R S

Date of contract.	Contractors's name and residence.	Purpose.	Date of final payment.	Total amount paid.
April 11, 1904	H. W. Hubbell & Co., Saginaw, Mich.	Excavating shoal at 9-Mile Point.	Sept. .., 1905	67,339.85
April 26, 1904	H. W. Hubbell & Co., Saginaw, Mich.	Services of derrick, boat, etc.	Sept. .., 1904	4,219.63
June 5, 1904	Frank Perry, Sault Ste. Marie, Mich.	Hemlock timber.	Aug. .., 1905	4,713.80
June 30, 1904	Municipal Engineering & Contracting Co., Chicago, Ill.	Concrete mixer.	Aug. .., 1905	778.50
July 8, 1904	Great Lakes Dredge & Dock Co., Chicago, Ill.	Services, dredge, tug, and two dump scows.	July .., 1906	56,526.00
July 8, 1904	Semande & Durocher, Sault Ste. Marie, Mich.	Services of derrick, boat, and diving plant.	July .., 1906	8,166.04
July 28, 1904	Allis-Chalmers Co., Milwaukee, Wis.	Rock crusher.	Sept. .., 1905	1,900.00
Feb. 9, 1906	W. J. Freeborn, Sault Ste. Marie, Mich.	Furnishing piles.	April .., 1906	534.15
Mar. 24, 1906	Lock City Mfg. Co.	Hemlock and oak timber.	May .., 1906	598.00
June 6, 1906	M. Sullivan, Buffalo, N. Y.	Excavating Round Island Shoal No. 1.	Nov. ... 1906	18,217.43
July 2, 1906	Great Lakes Dredge & Dock Co., Buffalo, N. Y.	Services, dredge, tug, and two dump scows.	Aug. .., 1906	5,915.95
June 13, 1905	The Soo Lumber Co., Sault Ste. Marie, Mich.	Fir timber.	Sept. .., 1905	5,156.28
Aug. 8, 1905	American Hoist & Derrick Co., St. Paul, Minn.	Derrick outfit.	Sept. .., 1905	1,588.00

LIST OF IMPORTANT PURCHASES, ETC., MADE BY PUBLIC NOTICE AND ORAL AGREEMENT.

Date of contract.	Contractors's name and residence.	Purpose.	Date of final payment.	Total amount paid.
Oct. 12, 1897	(Oral agreement.) Hickler Bros., Sault Ste. Marie, Mich.	Timber for canal gate.	May .., 1898	3,705.88
Dec 1, 1897	(Oral agreement.) Hickler Bros., Sault Ste. Marie, Mich.	Iron for canal gate.	July .., 1898	5,497.31
Feb. 11, 1898	Hickler Bros., Sault Ste. Marie, Mich.	Sheaves and sheave stands, canal gate.	July .., 1898	938.40
May 17, 1898	Hickler Bros., Sault Ste. Marie, Mich.	Removing material from site of movable dam.	Aug. 11, 1898	17,128.70
June 6, 1898	John F. Arnott, Sault Ste. Marie, Mich.	Grading canal grounds.	Sept. .., 1898	5,443.88
Oct. 15, 1898	Cullis & Stafford, Sault Ste. Marie, Mich.	Timber for pier extension	July 8, 1901	5,849.57

THE SAINT MARY'S CANAL

Date of contract.	Contractors's name and residence.	Purpose.	Date of final payment.	Total amount paid.
Oct. 31, 1898	Jones & Laughlins, Ltd., Pittsburgh, Pa.	Drift bolts, pier construction.	Jan. .., 1899	1,289.34
Oct. 17, 1898	Hingston & Woods, Buffalo, N. Y.	Excavating east approach, Weitzel Lock.	July .., 1899	19,860.50
Nov. 19, 1898	S. Dumond, Sault Ste. Marie, Mich.	Excavating and pier extension.	Aug. 18, 1899	4,454.80
Mar. 31, 1899	Emery D. Weimer, Ludington, Mich.	Timber.	Nov. .., 1899	18,377.38
May 16, 1899	Hickler Bros., Sault Ste. Marie, Mich.	Services, diving plant.	Dec. .., 1899	3,807.35
Oct. 27, 1899	(Oral agreement.) Emery D. Weimer, Ludington, Mich.	Timber	Nov. .., 1899	4,638.52
Oct. 21, 1899	Hickler Bros., Sault Ste. Marie, Mich.	Services, dredge, tug, and two scows	Jan. .., 1900	4,557.66
July 13, 1900	Hickler Bros., Sault Ste. Marie, Mich.	Services, derrick boat and diving plant.	Dec. .., 1900	5,496.55
Aug 11, 1900	John B. Irwin, Sault Ste. Marie, Mich.	Gate engine shelters.	Jan. .., 1901	1,950.00
Sept. 24, 1900	Hickler Bros., Sault Ste. Marie, Mich.	Services, dredge, tug, and two scows.	Dec. .., 1900	6,644.25
Sept. 24, 1900	H. W. Hubble & Co., Saginaw, Mich.	Services, dredge, tug, and two scows	Dec. .., 1900	6,798.08
May 7, 1901	Marshall N. Hunt, Sault Ste. Marie, Mich.	Gate engine shelters.	Sept. .., 1901	1,380.00
May 7, 1897	(Oral agreement.) H. W. Hubble & Co., Sault Ste. Marie, Mich.	Hire of dredge, tug, and two dump scows.	Dec. .., 1897	17,257.20
July 30, 1897	(Oral agreement.) Hickler Bros., Sault Ste. Marie, Mich.	Hire of derrick boat, etc.	Dec. 10, 1897	2,545.33
<i>Land Purchases.</i>				
	Joseph H. Steere.	Right of way through Little Rapids.	Mar. .., 1888	5,000.00
	Frank Perry, et al.	Right of way through Little Rapids.	July .., 1889	10,000.00
	Frank Perry, et al.	Right of way through Little Rapids.	April .., 1901	12,000.00
	Geo. Kemp, et al.	To widen channel.	Dec. .., 1904	90,000.00
	Robert D. Perry.	Canal approaches.	Dec. .., 1904	148,000.00
	M. S. Hotton, et al.	Canal approaches.	Dec. .., 1904	9,000.00
	James Strachan, et al.	Canal approaches.	Dec. .., 1904	17,600.00
	John P. Haller, et al.	Canal approaches.	Feb. .., 1905	3,500.00
	Peter Sundstrom, et al.	Canal approaches.	Feb. .., 1905	3,500.00
	Thomas Hickler, et al.	Canal approaches.	Feb. .., 1905	45,000.00
	Catherine Harris.	Canal approaches.	Feb. .., 1905	5,500.00
	Emelia Metzger.	Canal approaches.	Aug. .., 1906	25,700.00
	Chas. J. Ennis, et al.	Canal approaches.	Aug. .., 1906	3,500.00
	Chas. Brown, et al.	Canal approaches.	Aug. .., 1906	7,000.00
	Robert Melady.	Canal approaches.		3,000.00
	M. C. H. Wells.	Canal approaches.		2,000.00
	Charles R. Miller.	Canal approaches.		4,000.00

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